Computer-Enabled Project Spaces: Connecting with Palestinian Refugees across Camp Boundaries

**George Yerousis[1] , Konstantin Aal[2] , Thomas von Rekowski[2] ,
David W. Randall[2] , Markus Rohde[2] , Volker Wulf[2]**

[1]Birzeit University
PO Box 14, Birzeit
West Bank, Palestine
gyerousis@birzeit.edu

[2]University of Siegen,
57068 Siegen, Germany
[konstantin.aal, thomas.vonrekowski, dave.randall,
markus.rohde, volker.wulf]@uni-siegen.de

ABSTRACT

Come_IN computer clubs are an established approach to support inter-cultural and inter-generational learning in German neighborhoods. We explore the adaptation of the come_IN concept to the Palestinian context as a means to bridge the social and economic divide that has plagued West Bank society for a period of more than six decades. Social exclusion, political conflicts and prolonged military occupation have kept the refugee camps in a perpetual state of marginalization. In this paper we report on our work in Al Amari– a Palestinian refugee camp adjacent to the city of Ramallah. We examine how the computer club enables the emergence of social ties among residents of the camp and university students acting as tutors. Even though the ties are small-scale and informal, they have the potential to generate new and wider opportunities for exchange that may eventually support more social integration between the camp's marginalized population and the wider Palestinian population.

Author Keywords

Learning; Computer Club; Communities; Integration; Empowerment.

ACM Classification Keywords

K.4.m. Computers and Society: Miscellaneous.

INTRODUCTION

In this paper, we report on, and evaluate, attempts to introduce the come_IN computer club concept to a marginalized community, a refugee camp, in the West Bank in Palestine. Over the past 65 years, West Bank refugee camps have developed into marginalized dwellings with

populations of up to 25.000 inhabitants. Over the years, a growing population of refugees has produced new socio-economic problems, which we can characterize as entailing a social and 'digital' divide, as a result of a complex relationship with the rest of the Palestinian population and the wider geo-political situation.

Computer clubs have long been aimed at the so-called 'digital divide', and have generally been seen as bridging a socio-technical problem (see e.g.[10]). As Helsper [8] has pointed out in the context of the UK, the socially disadvantaged are the very people who are likely to be digitally disadvantaged. She estimates that this 'dual exclusion' means that the disadvantaged are seven times less likely to engage with the Internet than others. Seven years after its establishment in Germany (see e.g. [20]), aiming to address issues of exclusion in a specifically multicultural context, the come_IN network has extended its reach to this different and more complex socio-economic context. Whilst the German computer clubs engage with children and parents of mainly German and Turkish origin, come_IN clubs in Palestine cater to deeply marginalized refugees whose daily struggle is to live and survive in poor and precarious living conditions. The extension of the come_IN network into Palestine came as a result of a research-driven cooperation and partnership between Siegen and Birzeit Universities.

By leveraging and appropriating ICT, we suggest that Palestinian refugees may be empowered to become more resourceful and knowledgeable agents of positive and meaningful change in their communities. Bridging the digital divide could also help them forge closer linkages among themselves – across different camps, villages, and cities – promoting their integration into society and allowing them to positively engage in the Israeli-Palestinian conflict-to-peace transformation process [1] (See [24] for description of more overtly political activity).

In this paper, we examine the establishment of a community-based learning space in the Al-Amari refugee camp. The paper contributes to an existing literature on community informatics and HCI4D by examining efforts to foster community integration in a particularly difficult and 'socially disorganised' setting. We describe how a diverse

team of young university student volunteers was mobilized to plan, articulate, and run a technology-based youth mentoring program in the club. The tutors had to learn to tackle numerous problems as a result of the unique social, cultural, and political context of the refugee camp. As a team they had to overcome challenges (e.g. limited resources) and make sure that the program stayed relevant. Furthermore, we describe how the volunteers utilized their capabilities, often exploring new topics that are not related to their university studies to try to positively engage a wider base of in-camp children in the program and to sustain their level of interest. We also discuss how the social relevance of the technology program in the clubhouse helped the in-camp community to embrace it. The 'learning experience' we describe here, entails a great deal more than skills acquisition and rather problematizes functional or goal-driven approaches to educational technology in a context such as this, even when value-based. The benefits that accrued from the efforts we describe could not have been entirely anticipated, and neither could some of the problems we encountered.

STATE OF THE ART
While there is ample and seminal research investigating the positive implications of computer-supported community-based learning spaces in diverse urban and rural settings, little attention has yet been paid to contexts in which the targeted underprivileged communities are "forced" refugees living in isolated but open quasi-temporary enclaves.

Learning by designing, cultivating a community of learners, fostering respect and trust, and encouraging youth to build on their own interests were the guiding principles (set forth by MIT's Media Lab) by which the first Computer Clubhouse was established in Boston in 1993 [18]. Grounded in the fields of education, developmental and social psychology, and cognitive science, the Computer Clubhouse model has grown to a network of more than 100 active youth community learning centers across 20 countries around the world [26].

Consisting of six computer clubs spread across four cities, the come_IN network in Germany is inspired by the original clubhouse concept but follows a fundamentally different approach by focusing on cross-cultural interaction between the members. Mainly located in elementary schools, the intercultural community spaces were established to foster learning, social networks, and integration in German neighborhoods with a substantial Turkish migrant population [20, 22]. As a result of cooperation between Birzeit and Siegen Universities, the first come_IN computer club was established in the Jalazone refugee camp. Weekly project activities targeting school-age youngsters have captured the attention of Jalazone parents as well as teachers from the two UNRWA (United Nations Relief and Works Agency) schools serving the camp community [1].

There are relatively few studies dealing with computer supported learning and community building under the specific conditions of Palestinian refugee camps. Wahbeh [24] analyzed a number of cases that involve students and teachers in public, private and UNRWA schools in the West Bank, where institutions like the Intel Club performed training courses for young people. These computer labs were not connected to the Internet due to budgetary reasons, so the pupils had to rely on both the clubs and Internet cafés to use the computers and otherwise access the Internet for doing their homework.

The digital divide between the students in a camp and those outside is still obvious. The term "digital divide" was defined by Mehra [12] as "the troubling gap between those who use computers and the internet and those who do not." To narrow this divide and to empower students in a refugee camp, Sawhney [19] hosted storytelling workshops over a period of three years. The young people in refugee camps have stories to tell and reflect a lot on "their identity, heritage, environment, and life experience" [ibid]. Storytelling can also be used to work through intractable conflicts; this enables people with traumatic social experiences to digest these experiences and learn to live with the events. Working with a Palestinian- Israeli group, Bar-On [4] demonstrated in a similar manner that storytelling often helps in dealing with painful events.

Asthana & Havandjian [3] conducted a hermeneutic exploration of "how young people in refugee camps in Palestine appropriate and reconfigure old and new media in the process of creating personal and social narratives. Focusing on Palestinian identity and selfhood, the project explores how and in what specific ways children and young people engage with media forms to express their ideas of politics, citizenship, and democratic participation." [2] For them [Palestinian refugee camp youth], citizenship is as much about consensus as it is about 'conflictual' engagement [13, 14]. Youth empowerment in Palestine was also addressed by Hart, exploring "the challenges of promoting the participation of children and youth in the face of immense political, physical, social and cultural constraints." [7]

Nevertheless, and despite this work, no evaluation has been conducted relating specifically to the potential of intercultural and inter-generational computer clubs in refugee camps – in particular long term forced camps. In this paper we focus on a second come_IN computer club established in the Al Amari refugee camp. We specifically analyze the emergence of social ties between the camp population and the tutors from Birzeit University as a fundamental feature of the 'learning experience'.

RESEARCH SETTING
The continuous provision of humanitarian services to West Bank refugee camps over a period of sixty years has not significantly alleviated a chronic state of isolation, exclusion, and poverty among the refugee population.

While the Palestinian Authority (PA), the West Bank government, maintains the rule of law in cities, refugee camps remain devoid of enforceable laws and regulations and are sometimes regarded as places of illegitimacy. Refugee camp communities often rely on their own internal actors to resolve their grievances and conflicts. Urban Palestinians generally anticipate negative interactions with refugee camp residents due to perceived differences in behavior, morals, values, and attitudes. As a result, refugee camp spaces are regarded by many Palestinians as probable hostile places.

Al-Amari: A Palestinian refugee camp in the West Bank
A total of 59 refugee camps are administered by the United Nations Relief and Works Agency (UNRWA) in the West Bank, Gaza, Syria, Jordan and Lebanon. Six and a half decades after its establishment as one of the first temporary encampments for those who were forcefully displaced and rendered homeless during the 1948 Arab-Israeli war, Al-Amari refugee camp remains the confined living space of some 12,061 Palestinian refugees [16].

Located at the southwestern urban periphery of the West Bank's city of Ramallah, Al-Amari refugee camp is a hostage to the complex and unstable political and military situation characterized by historical conflict between Israel and Palestine (see e.g. [6]; [9]). There can be no doubt that the ongoing conflict has been punctuated with prolonged periods of suffering in the camps and elsewhere (see also [2] and [21]).Though the camp falls within the Palestinian Authority (PA) controlled territories and is adjacent to Al-Masyoun- a very affluent Ramallah neighborhood- it continues to be an underdeveloped enclave under the humanitarian responsibility of the UNRWA. Rudimentary aid services (limited by resources) are provided to the camp residents, encompassing basic education, essential health care, and microfinance for income-generation purposes.

Al-Amari refugee camp's internal power structure is characterized by a complex tapestry of non-state actors- unlike the situation in other PA controlled areas- and which includes the popular committee of camp services, political factions – mainly Fatah, the women's activity center, youth activity center, tribal council (conciliation committee), and UNRWA services administration – with the popular committee being the most salient actor.

The scarcity of gainful employment opportunities and the absence of thriving economic enterprises within the camp are manifested in a high unemployment rate (8% higher than in the rest of the occupied Palestinian territories [15]) and a persistent dependence on civil service employment in the Palestinian Authority, UNRWA jobs, and irregular daily-wage labor. Unregulated vertical and horizontal residential expansion has led to a further increase in cramped and crowded camp conditions giving rise to overall poor hygiene.

In Al-Amari, it turns out that almost all of the schools after-school activities are planned and run by an active youth community center, located inside the camp. The Palestinian Child Center (PCC) is a community outreach non-governmental organization that caters to school-age youngsters up to grade twelve. This center is seen as the only safe and productive place for in-camp school kids to participate in meaningful extra-curricular after-school activities. The center's director and two administrative staff have full-time day jobs and run the center's day-to-day activities as volunteers in the afternoon. Much of the support network of the center consists of visiting volunteers who are working for international organizations on short-term assignments. Unfortunately, the capacity building activities that they carry out in the camp are short-lived and often end abruptly as the volunteers' work with their affiliate organizations comes to an end or when the foreign volunteers' visas expire. This has caused many of the youth programs at the center to become fragmented, thus undermining their desired outcomes and overall impact.

Figure 1: Al-Amari refugee camp's poor housing conditions

RESEARCH METHOD
For better insights into the daily routines and practices of a refugee camp, Participatory Action Research (PAR) by Kemmis & McTaggert [11] was the chosen methodological framework. We were active agents in the whole process of establishing and operating the computer club (choosing the right partner and location, preparing the sessions and manage the work with the volunteers and children). In accordance with Tacchi et al's [23] views on 'ethnographic action research' we adopted conventional observational strategies to guide our research and the action research framework to link those observations back to the planning of activities. Observations were conducted over a period of 52 months, from the foundation of the first computer club in May 2010 to September 2014. The first author visited both clubs once a week and was accompanied by the other authors during their visits to the West Bank; at least every six months with a total stay of 16 weeks. During these visits, our researchers attended, observed and took part in the weekly club sessions. In meetings and workshops with the local tutors they tried to deepen their understanding of

the situation in the refugee camp. Every evening and after the sessions, extensive documentation was written pertaining to the respective day; over 90 pages of protocols were collected.

In 2013, a native speaker carried out 13 semi-structured interviews and informal talks with the children from both computer clubs. The aim here was to triangulate with other observational data already collected and to get a better sense of the motivational elements that contribute to participation. It was felt that this number of interviews was adequate for those purposes. Children were asked about their experiences in the weekly sessions, their relationship with the tutors, and the influence of the club in their life. Additionally, the tutors wrote detailed protocols from the weekly session and collected feedback sheets from the children. The close relationship between the tutors and the computer club members helped to gain reliable perspectives on the club sessions and further project ideas. Other materials (e.g. drawings, project results, 3D-prints) were documented and collected for analysis.

EMPIRICAL FINDINGS

Sourcing a computer club hosting partner
The second computer club opened one year after the first one in Jalazone refugee camp. Exploring the potential of different refugee camps was the primary rationale behind setting up the second club. Al-Amari refugee camp was suggested by the Jalazone's popular camp committee. The reasoning was that both popular committees have previously had contact through playing soccer games.

Acting on their suggestion, the team of researchers visited Al-Amari on numerous occasions, discussing the computer club concept with the main actors. The team also talked to parents and spoke with children playing in the area. In-camp kids immediately provided the team with visions of how a computer clubhouse might look like while parents elaborated on expectations of possible functions and modes of operation. Not surprisingly, some parents expressed concerns regarding children's possible negative encounters with outsiders while others raised the issue of gender segregation, voicing their preference for keeping the sexes separate. Most people that we talked to feared that the computer club might potentially resemble the undesirable Internet cafés in which children could engage in unsupervised computer use (e.g. playing violent games, watching pornography).

There was, even so, some institutional support. In the Jalazone refugee camp, members of the popular camp committee had established a small non-governmental organization, 'Dima for Innovation', in order to bring new donor projects to the camp community and to host our first computer club. In Al-Amari, the Palestinian Child Center (PCC) – a relatively independent organization – showed interest and provided compelling evidence to suggest why they would be the most capable partner to host the computer club and to provide available personnel to facilitate the sessions. Connecting and working with reputable academic institutions was a key driver for the PCC to engage in the project. In a memorandum of understanding it was agreed that the academic partners would procure the hardware and source the mentoring team of volunteers to run weekly sessions for a period of one year, while the PCC would enable the physical environment by allocating the needed space. The PCC's genuine interest quickly materialized as the administration took the necessary steps to dedicate a room on the second floor of the building as the working space for the project. Previously, the room had been used as a neglected storage space for zero-value old computers and a few non-functional pieces of musical and office equipment. The PCC rehabilitated the room by painting the walls and adding some used tables and chairs.

Hardware architecture
After two years of usage, the thin client-based hardware configuration in Jalazone was functioning well and proved to be easy to maintain. We decided, therefore, to use the same system configuration for the new computer club in Al-Amari. The decision was also influenced by the relatively low initial investment cost of the thin client system along with the low total cost of ownership. Furthermore, the inability of the thin clients to fully function as a stand-alone computer station without the host computer makes them less prone to theft. Peripherals were also procured including a projector, a monochrome laser printer, and a flatbed scanner – the same equipment as in the Jalazone computer club. Expecting no more than 20 children to actively participate in the weekly sessions – as was the case in sessions taking place in the club in Jalazone – the initial plan was to encourage the participants to work on projects in groups of 2 or 3. The assumption was that twelve computer stations would be more than enough to serve all the participants.

Figure 2: One of the first girls-only sessions

However, children in the first instance did not want to work in groups, which meant there was a shortage of machines. Student volunteers tried to accommodate the children by

bringing a few mini-laptops that Birzeit University (BZU) provided for this project (Figure 2) to the sessions. The mini-laptops were procured by BZU as part of an annual technology summer camp program for school-age children. In turn, this meant the laptops had to be shuttled back and forth between Al-Amari and Jalazone as needed. Furthermore, volunteers had to provide their own laptops for the children to use on a number of occasions. Children were unexpectedly demanding with regard to screen size and colour.

While the project coordinator was in the process of setting up the computer club in Jalazone, the community leaders had demanded that local ISP provide free Internet to the club. In Al-Amari, it happened that one of the camp's residents worked for a local ISP and, following a request from the PCC, his company provided a 1-year complimentary Internet access with a connection speed of 8 MB. The main ADSL line was installed in the PCC's administration office, and Internet access to the clubs' room was made available via a wireless repeater device. The student volunteers were able to replace the main wireless connection with a wired one and connect the two host computers to the Internet (Figure 3).

Figure 3: Internet connection in the computer club

Recruiting University student volunteers

Undergraduate Birzeit University students, working as volunteers, are the main driving force of the computer club weekly sessions and the mentoring that they deliver to the in-camp children remains a crucial factor in maintaining continuity of the program. The volunteer selection and screening process was extensive, and at many times the coordinator had to go through numerous iterations of students in order to source committed and capable volunteers.

The selection and screening process

Birzeit University requires every student to participate in a 120-hour mandatory community-service program. At the start of every fall and spring semester undergraduate students are recruited to become part of the new active mentoring team. The semi-formal selection process entails a simple "expression of interest" signup form followed by a face-to-face interview during which the student applicants

are given the chance to talk about their interests, talents, previous volunteering work, and availability. Students who are residents of Al-Amari camp and are passionate about bringing meaningful positive change to their community are typically selected from the shortlist. After a second interview, 5-8 volunteers are chosen from the shortlist and are assigned to work in the computer club.

The case of one of our students, Sujood, a student of the Architectural Engineering department, indicates why the computer clubs were attractive for students. She had frequently participated in on-campus community service activities offering support for students with physical disabilities. However, she had dedicated less and less time in what had become to her *"monotonous on-campus volunteering work."* After a few months of working in the club in Al-Amari, Sujood describes the challenges that she encounters in the camp as "*a golden opportunity [to leverage her experiences in the refugee camp] to learn new skills and to sharpen existing ones.*"

Exchange of experiences between volunteers

As the new university semester begins, a new round of selection processes is initiated. The successful candidates attend a "handover" workshop that is carried out in the refugee camp during which the alumni mentors pass over all important and relevant information and experiences to the new student volunteers (new mentors). We found that conducting such workshops is important for ensuring a seamless handover of responsibilities and an effective communication of the lessons learned to successive mentors. Maintaining continuity in the work is vital. To help boost and sustain their level of engagement and motivation, laptops are provided to each of the volunteers and are handed over to the successive mentors during the handover session.

Group dynamics workshops take place on a bi-monthly basis during the course of the work with the computer clubs. These workshops are designed to bring up, discuss, and mitigate important issues related to the work of the volunteers. A substantial amount of time in the workshops is spent on reflection regarding past work and future planning of activities in the computer club, while capitalizing on and re-using past practical experience and knowledge. Personal safety issues in the camps were a frequent subject of discussion. As Sujood said during one of the workshops, *"When you arrive to the refugee camp, make sure you are walking in groups. Never wonder alone in the camp alleys.*"

Implications of location

The close proximity of Al-Amari to the city of Ramallah makes it easily accessible by public transportation. As a result, almost all of the students who volunteered to work in the computer club were residents of Ramallah and its nearby villages. This was not the case in the Jalazone refugee camp; almost all of the volunteers working there were in-camp residents. Jalazone refugee camp is perceived

to be dangerous because it borders the Israeli settlement of Beit El with frequent clashes erupting between Jalazone youngsters and the IDF [1]. Sourcing student volunteers from outside of Jalazone camp was difficult, as the journey to and from the refugee camp was perceived to be unsafe and to present unpredictable difficulties. Conditions are no more secure in the camp itself, where volunteers reported verbal harassment by groups of young people, and on one occasion even a physical attack.

Many of the newer student volunteers have already participated in volunteering opportunities such as assisting disabled students around campus or offering occasional support to caregivers in senior homes off campus. For them, even so, doing community service work in a refugee camp setting can be overwhelming as they find themselves immersed in trying to gain ground-level perspective of the socio-political intricacies involved.

Participants

Weekly face-to-face mentoring sessions in Al-Amari took place in the afternoon with a typical duration of an hour and a half. 5th and 6th grade children assemble in the computer club, sometimes more than 20 at one time, and meet with the group of university student volunteers. A specific challenge here was the absence of any wider perspective on the part of the children, allied to the pressures of their family and community existence. They preferred to tell personal stories grounded in immediate experience, such as of a family wedding that they attended with their parents, a football game that they participated in, or at one time, how the school's principal made jocular threatening remarks about the consequences if they did not attend a pre-planned in-school after-school activity. The large weekly fluctuation in the number of participants made it difficult to work continuously on their chosen projects.

Computer club projects

Children gather in groups of 2 or 3 and work alongside a student volunteer. They brainstorm and agree on a project that they will plan and execute. Projects typically last for 6-8 weeks and are created and developed using a common set of technology tools agreed upon in advance. A more detailed description of three projects can be found in what follows.

Scratch

The first few sessions after the clubhouse's opening were part of a Scratch project. Since no training material was available in the Arabic language, the research team developed a Scratch guide in close collaboration with the volunteers, after an introduction in the first club in Jalazone. The training material evolved over the whole course of the Scratch project and was adjusted based on experiences with the children (e.g. many pictures, easy language).

In the beginning the children worked individually to complete specific tasks assigned to them by the student tutor. Some tasks were designed to allow the children to explore Scratch's environment and user interface, while others were meant to introduce basic programming concepts, such as conditional or looping blocks. Later on, and as the sessions progressed, children were asked to come up with a simple game and attempt to create it using Scratch. Here, children agreed to work in groups of two, as they felt more confident of their ability to develop the game as a group. They continued to work in groups from this point onwards. At the end of the Scratch program, children presented their projects and received small gifts and certificates of participation.

Electric projects building kit

The IT Center of Excellence at Birzeit University had previously purchased 10 electricity-learning kits [27] for a technology summer camp. The research team was able to utilize these kits, especially adjusted to fit the needs of children. Working in groups of 2, the children completed hands-on experiments that were designed to introduce the basic laws of electricity and magnetism. Based on the detailed training material, the children managed to tinker with components of the kit without receiving help from the volunteers. Later in the sessions, children created projects ranging from solar powered devices to a simple piano. Solar-powered devices were put together utilizing some learning kits that were provided to the research team by the PCC.

Figure 4: Children working with electricity kit

3D printing

A simple 3D printrbot printer was brought to the clubhouse by a visiting team of two researchers from Siegen University. For a period of 6 weeks, children explored and tinkered with cubeteam [28], an online-tool to build models out of cubes. The research team created an open world, where the children worked collaboratively. They wanted to see the printer in action and take home their 3d creations on the same day after the session. As a result, they preferred to create simple objects that took little time to design and print. As one group of children came up with the idea to create names of children and print them, all the other groups followed suit. They also printed other things rooted in immediate experience such as a truck with a rocket on it or a mosque. After some sessions, the children wanted to go

one step further in designing and printing by using round shapes, but the software's limitations prevented any shape other than cubes being printed.

Club Sessions
The weekly sessions follow the principle of informal learning with no fixed curriculum: starting with a time slot to play games, subsequent round-table discussions about the actual project and then project-related work. Facilitated by a university student volunteer, the session starts with the children gathering around a U-shaped set of tables and are given the chance to bring up an issue (often related to their community) that they think is important to them. Several times during the course of our work with the children, sessions took place out of the normal computer club working space - two times in open space inside the refugee camp as the children were developing solar-powered projects. The participants frequently asked questions about the volunteers' academic fields of study and at many times asked to visit the university. On one occasion, we were able to arrange for one of the children to come to Birzeit University and interact with the student volunteers as they were meeting to discuss and test the next technology tool that they wanted to utilize in the sessions.

When the project started, the PCC requested that we hold two sessions per week - one for the boys and another for the girls. In contrast, the administration of the Jalazone club had told us they wanted no separation; girls and boys would attend the same club session. All of the in-camp tutors at Al-Amari suggested separate sessions and for about 2 months, the student volunteers went to Al-Amari twice a week. As it happened, however, children were not willing to accept this gender segregation (with girls coming into the boys sessions and vice versa), so the frequency was reduced to once weekly sessions in which both girls and boys participated.

The continuity of the club sessions was also impacted by the uncertain political context. In early August of 2014, a young Palestinian man, resident in the Al-Amarai camp, partaking in protests near the settlement of Psagot was shot and killed. The individual was a close relative of Shahd - a 6th grade girl who diligently attended the computer club sessions. The killing galvanized thousands of people from the camp and the surrounding area as they marched in a monumental funeral procession. The clubhouse session had to be cancelled and the mentoring team visited Shahd's parents to offer condolences as the camp community mourned for 3 straight days. In early September of 2014, a 2nd resident of the Al-Amari was shot dead. The planned computer club session had to be cancelled yet again as tensions in and around the camp escalated.

Focusing on shared experiences
The precarious and often hostile circumstances in the camps are difficult for outsiders to grasp. For children with almost no exposure to the outside world, it is not surprising that

their ideas about worthwhile activities are grounded in the immediacy of their experiences. Developing project ideas that were both educationally worthwhile and deemed to be relevant by the children was not easy. This epistemological gap inflected much of the planning. Nevertheless, and with much effort, we have seen at least on one occasion that the children and their mentors were able to develop individual and collectively shared values for project ideas through bringing up shared life experiences. In the next sub-section we describe how a mentor helped them to design and print architectural projects (instead of their initial desire to draw Barbie dolls in cubeteam and print them in 3D.)

Project idea shaped by socio-political shared experiences
Sujood describes the first few sessions working with the refugee children in Al-Amari camp as both fulfilling in terms of helping under-privileged communities and a learning experience for herself, as she had to explore and use new technologies and software as part of the mentoring sessions. Her own experiences prior to volunteering unsurprisingly shaped her commitments

Her parents had moved to the vibrant city of Ramallah in 2009 during the "Fayyadism" reform era to capitalize on the surging economic growth that has been reshaping the city and has opened up diverse and high-paying employment opportunities. Their relocation took place a month after prime minister Salam Fayyad issued "Palestine - Ending the Occupation, Establishing the State" - a 36-page work plan outlining his vision to establish a de facto Palestinian State as an "independent, democratic, and modern Arab state" and setting objectives and activities to "stimulate economic recovery and develop an enabling environment for business and investment."

Her parents' old house in Jenin is a few kilometers away from the Jenin refugee camp - the site of the worst conflict during the second intifada. Sujood was 9 years old when the camp saw the demolition of a huge portion of its infrastructure and the deaths of both 50 residents and 23 members of the IDF.

At BZU, Sujood became immersed in conceptualizing and designing modern structures for her architectural engineering classes. However, while brainstorming with Al-Amari camp children to come up with ideas for 3D design and printing projects, childhood memories of her life in Jenin were evoked and, coupled with her love of creative design, prompted her to ask her group of children to think about how they wanted to re-shape their poor living conditions. They all discussed the idea of re-building in-camp houses as a way of living a happy life. The 3D project that she and 3 twelve-year old girls conceived of and agreed upon entailed the design and 3D-print of a model of a shiny new house with a star-like roof structure (the star was meant to symbolize a happy new life)
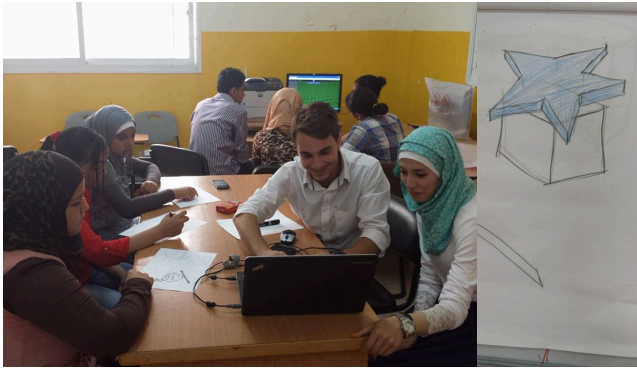
Figure 5: Children and mentors discuss project ideas (left) Preliminary sketch of their 3D design and printing project (right)

The inception of the project's idea was partially inspired, she reported, by her graphic memories of the destruction of Jenin's refugee camp and the re-building efforts that took place afterwards and partly by her desire to see Al-Amari camp children live and thrive in spacious and healthy environment. From the children's point of view, the project was an imaginary house that the three of them wanted to live in as a replacement of their existing home.

Perceived fear of stigmatization
Active student tutors and their co-tutors come from diverse backgrounds and different study fields spanning numerous colleges across Birzeit University. While there are a handful of Birzeit University students who are residents of Al-Amari, only one of them - Hanin - jumped on board the group of volunteers in order to help run the weekly sessions. Even though she was born in the camp and was brought up there, this computer science student tended to - whenever possible - avoid mentioning Al-Amari refugee camp as the place of her domicile. Instead, she preferred to identify herself as a resident of the wider city of Ramallah because of the stereotypical negative connotation associated with the label "refugee camp resident" (bint al-mukhayyam) that she thinks could potentially limit her future endeavors and constrain her career opportunities.

Bissan is another student volunteer who is studying information technology at Birzeit University and lives in Qaddoura refugee camp. Situated on the sprawling outskirts of the city of Ramallah less than 1 km away from Al-Amari, Qaddoura refugee camp came into existence in 1948 but remains to this day unrecognized as an official UNRWA camp. In a discussion about the reluctance of university students who are residents of Al-Amari to join the mentoring team, Bissan believes that university male students who are residents of the nearby Al-Amari camp, are proud of their Palestinian identity and possess a heightened sense of nationalism but at the same time are concerned that their "camp resident" labeling might stigmatize them and hinder them from blending into the social structure of the university, considering that the

overwhelming majority of its students are members of middle-class and urban elite families.

Positive interpersonal relationships
After spending a few weeks working on their projects - Scratch, for example - children sometimes got frustrated and wanted to give up as they found themselves unable to build sophisticated games. The volunteers discussed this issue and decided to bring new fun activities to some of the sessions. One idea was to bring a cake and celebrate the birthday of one of the children or one of the volunteers if it coincided with the day of the session. Volunteers took pictures with the children as they sang together and extinguished birthday candles. Photos were later posted and shared on Facebook. Another idea, suggested by one of the children, was for the team of volunteers to visit her house in the camp. The volunteers accepted the invitation, and the visit to Waad's house turned into a learning experience in expressive art. The child's father was a self-taught artist. He showcased his art creations and took time to tell the volunteers the story behind each of his oil paintings.

As time progressed and computer club sessions continued to take place on a weekly basis, more interpersonal relationships emerged. When the club house sessions would end, a few children would accompany the volunteers as they walked to the exit of the camp, chitchatting on the way about friends, family, and school and on one occasion one of the children invited some of the volunteers to have dinner at her parents' houses. "*Children [refugees] are children. They want to play their favorite sport and attend school*," notes Amani, a computer systems engineering student and one of the volunteers who we interviewed. She explained that she had never been in a refugee camp before she started tutoring children in the computer club. After a full semester of working with the camp children, Amani said that she could no longer sense the social disparity between the in-camp children and those of her neighborhood.

DISCUSSION

Community anchor institutions
In-school computer clubhouses that are part of the German come_IN network are relatively straightforward to set up and manage as they benefit from the schools' existing infrastructure and leverage their in-house expertise. Equally, and even allowing for cultural differences between migrant communities and the host community, there is a shared knowledge of the wider world provided for by extensive and stable Western infrastructure (associated, for instance, with schooling). Adapting the same model to the West Bank refugee camps' context is challenging as unique material and socio-economic characteristics come into play. The schools in Al-Amari refugee camp are part of UNRWA's humanitarian aid system that was set up in 1949 to provide educational, health, and social services to Palestinian refugees. The UNRWA schools, however, could neither host the computer club nor offer any support due to

financial constraints, centralized decision-making and bureaucratic inertia.

Local NGOs such as the children centers substituted for the schools as a host site for the computer clubs. However, these NGOs are often strongly aligned with the political structures in the camp - in both cases as parts of the Fatah movement. In Jalazone, the computers in the club were sometimes used for political purposes (e.g. designing and printing political handouts, promoting political messages on Facebook) [1]. In Al-Amari the PCC had a more independent stance. The children and youth centre pre-existed the computer club and already had a good reputation as a safe and trusted place.

Political Issues

Anchor institutions are sometimes held to be a vital part of community regeneration and development (see e.g. the Nettercenter at the University of Pennsylvania [29]). They, it is argued, enable communities to 'build from strength'. Here, however, weak community anchor institutions within the camp limited the options for possible hosting of the computer club, and geo- political factors seemed to disrupt the continuity of the sessions on a regular basis. The computer club that the research team established in the Jalazone refugee camp in mid 2012 exemplifies many of the difficulties. The camp is adjacent to Beit El – an Israeli settlement and active military outpost that - according to a '*Peace Now*' report – stands on private Palestinian land [17].

Whatever one's stance on Arab- Israeli conflict, the fact is that the Jalazone clubhouse sessions had to be frequently cancelled as violent clashes erupted between in-camp youngsters who threw stones and burnt tires, and the IDF who responded with the firing of tear gas, rubber-coated bullets

Fortunately, Al-Amari does not directly border any Israeli settlements and the assumption is was that clubhouse sessions would less likely be interrupted as a result of violent confrontations with the Israeli army. However, this assumption turned out to be false (see above).

Mutual benefit for the volunteers and children

Community work is mandatory for every student of Birzeit University; most students, understandably, choose easy tasks (e.g. planting trees). Like most Palestinians from mainstream urban society, the volunteers working in the computer club never had visited a refugee camp before and very rarely knew anyone living in there. Our project in Al Amari allowed the students to explore a refugee camp relatively close to Ramallah and positioned in a fairly safe location. Running the club helped them to understand the conditions and situation of refugees, who are often living next door to their villages or urban neighbourhoods in very different circumstances. The children benefited from the mentoring program by getting the opportunity to work and learn together with the student volunteers. In the hostile refugee camp environment, academic role models are uncommon; the volunteers can be seen as new role models – establishing a link between camp and university. There is a very real sense in which mutual learning went on. Students became a great deal more aware of the conditions under which refugees often have to live and of the challenges associated with that. Children were exposed to points of view, and experiences, that they all-too-rarely experienced otherwise.

CONCLUSION

As Baumer and Silverman [5] have noted, CHI has seldom dealt with 'when not to design' and has failed to deal on a systematic basis with the prospect that computer solutions may do more harm than good. Our point is precisely that understanding how technology is contextually appropriated over a period of time is one way to deal with the complex issue of how technology, culture and educational experience may intersect in difficult and fragmented circumstances.

Connecting volunteers with an academic background and children from refugee camps has been shown to positively impinge on both partners: children may extend their perspective over the boundaries of the refugee camp while acquiring new skills and contacts; the student volunteers gain insights about the reality of the refugee camps and gain a better understanding the needs and struggles of the camp inhabitants. This is evidently not a function of sophisticated technological development but of a mutual learning process concerning the conditions of life experienced within a community and the possibilities for engagement, possibilities, which exist but are constrained by context. While the regularity of the computer club sections, for instance, is severely impacted by the political context, the shared activities still seem to create social ties and elements of common practice both within the group of student volunteers and also among children in the camp. These joint activities over time have an impact on collective identity and have a beneficial effect on perceptions of a stigmatized group.

Stevens et al. [22] assumed that computers and their potential social attributes could serve as an attractor to motivate actors to work on common projects. The appeal of computers definitely plays an important role in bringing together the children and convincing the head of PCC to join our efforts. However, the students may be less strongly motivated by the challenges of computing. Tutoring the computer club in Al Amari offered a relatively safe way to gain experiences with the refugee camps' population – a population which is strongly marginalized in the Palestinian society.

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REFERENCES

1. Aal, K., Yerousis, G., Schubert, K., Hornung, D., Stickel, O., and Wulf, V. Come_in@palestine: adapting a german computer club concept to a Palestinian refugee camp. In Proc. CABS 2014, ACM Press (2014), 111-120.

2. Al-Husseini, J. UNRWA and its needs. Position Paper by Ibrahim Abu-Lughod Institute of International Studies. Birzeit University, (April 2011).

3. Asthana, S. and Havandjian, N.R. Youth Media Imaginiaries in Palestine: A Hermeneutic Exploration. *European Scientific Journal 9*, 10 (2014).

4. Bar-On, D. and Kassem, F. Storytelling as a Way to Work Through Intractable Conflicts: The German-Jewish Experience and Its Relevance to the Palestinian-Israeli Context. Journal of Social Issues 60, 2 (2004), 289-306

5. Baumer, E. and Silberman, M. 2011. When the implication is not to design (technology). Proceedings of CHI'2011. pp 2271-2274

6. Chomsky, N. and Pappe,I. 2010. Gaza in Crisis: Reflections on Israel's War Against Palestinians. London: The Penguin Group

7. Hart, J. Empowerment or Frustration? Participatory programming with young Palestinians. *Children Youth and Environments 17*, 3 (2007), 1–23.

8. Helsper, E. 2008. Digital Inclusion: An Analysis of Social Disadvantage and the Information Society. Department for Communities and Local Government. London, UK.

9. Khalidi, R. 2007. The Iron Cage. Oxford: OneWorld Publications

10. Light, J.S. 2001. Rethinking The Digital Divide. Harvard Educational Review, Vol. 71 (4), 709-734

11. McTaggart, R. and Kemmis, S. *The action research planner.* Deakin university, 1988.

12. Mehra, B., Merkel, C., and Bishop, A.P. The internet for empowerment of minority and marginalized users. *New Media & Society 6*, 6 (2004), 781–802.

13. Miessen, M. „*Die Gewalt der Partizipation: Räumliche Praktiken jenseits des Konsensmodells "*. Eurozine, 2007.

14. Mouffe, C. Artistic activism and agonistic spaces. *Art & Research 1*, 2 (2007), 1–5.

15. Palestinian Central Bureau of Statistics. Press Release on International Refugee Day. Ramallah, (20 June, 2013)

16. PASSIA. Palestinian Refugees: Endless Injustice. Palestinian Academic Society for the Study of International Affairs (March 2014).

17. Peace Now Settlement Watch team. Breaking the Law in the West Bank – One Violation Leads to Another: Israeli Settlement Building on Private Palestinian Property (March 2007). Retrieved September 1, 2014 from http://peacenow.org.il/eng/sites/default/files/Breaking_The_Law_formal%20data_March07Eng.pdf

18. Resnick, M., Rusk, N., and Cooke, S. The Computer Clubhouse: Technological Fluency in the Inner City. In High Technology and Low-Income Communities 1998, MIT Press (1998), 266-286.

19. Sawhney, N. Voices beyond walls: the role of digital storytelling for empowering marginalized youth in refugee camps. ACM Press (2009), 302.

20. Schubert, K., Weibert, A., and Wulf, V. Locating computer clubs in multicultural neighborhoods: How collaborative project work fosters integration processes. *International Journal of Human-Computer Studies 69*, 10 (2011), 669–678.

21. Shabaneh, G. Education and Identity: The Role of UNRWA's Education Programmes in the Reconstruction of Palestinian Nationalism. *Journal of Refugee Studies, 4*,25 (2012), 491-513.

22. Stevens, G., Veith, M., Wulf, V. Bridging among Ethnic Communities by Cross-cultural Communities of Practice. In Communities and Technologies 2005. Springer, 2005, pp 377-396

23. Tacchi, J., Slater, D. and Hearn, G. 2003. Ethnographic Action Research: A User's Handbook. UNESCO

24. Wahbeh, N. ICT and Education in Palestine: Social and Educational Inequalities in Access to ICT

25. Wulf, V., Aal, K., Abu Kteish, I., Atam, M., Schubert, K., Rohde, M., Yerousis, G. & Randall, D. (2013, April). Fighting against the wall: Social media use by political activists in a Palestinian village. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 1979-1988). ACM.

26. Intel Computer Clubhouse Network. http://www.computerclubhouse.org/locations

27. Electricity learning kits. Jumbo Trading. http://jumbotrading.com/

28. Cubeteam. https://cubeteam.io/

29. Anchor Institutions Tool. https://www.nettercenter.upenn.edu/anchortoolkit/what-anchor-institution