Technology Incorporation of the Project Our Children: Windows of Opportunities: The Professional Perspective

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Abstract

To evaluate the incorporation of the technologies of the Windows Project by health professionals. **Methods:** This is an evaluation research with triangulation methods using the four levels of evaluation of Kirkpatrick. The subjects of study were physicians and nurses of the Basic Units of the Western Region Health Project. **Results:** Three Teams incorporated the technology, nine partially incorporated and six non-incorporated the technology. Three nurses and two physicians incorporated the technology, nine nurses and five physicians incorporated partially-five nurses and two physicians failed to incorporate the technology. Five categories of behavior change and four dimensions related to the incorporation of technology were identified. **Conclusions:** The incorporation of the Technologies of the Windows Project proved to be closely related to the process of continuing education. The professional work routine analysis provides clues about the technologies already in use by the teams and the needs of incorporating a new technology.

**Keywords:** Health Promotion, Child Development, Biomedical Technology Assessment, Family Health Strategy, Nurses, Physicians

1. Introduction

The Family Health Strategy (FHS) is a space that allows further actions beyond the biological and physiological care. A space where the health potentials of the population can be strengthened, and is an appropriate technology development for a larger care approach (Chiesa & Batista, 2004).

The Project Our Children: Windows of Opportunities (Windows Project) aims to promote child development, complementing the traditional approach focused on anthropometric measurements of children and landmarks neurodevelopment. The project aims to build integrated actions in various neurodevelopment dimensions, such as affection, care, attachment and food, among others, that promote child development (Chiesa, Fracolli, & Zoboli, 2009).

Understanding that the FHS has a special place of care with families, the intention of the project is to support family interventions, for daily care, such as feeding time, jokes and family relationship that could build actions that would promote the child development positively (Chiesa, Fracolli, & Zoboli, 2009).

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The Windows Project worked directly with the Family Health Teams so as to broaden their vision about child development, in particular in relation to the child experiences in their familiar routine, and favoring links and proximity to all involved in the care the child (Chiesa, Fracolli, & Zoboli, 2009).

One of the theoretical axes of the Windows Project, the Family, is the first place of belonging and child’s identity construction. It is central to the emergence of needs, for being the first place of socialization. The family is a resource for child development (Chiesa, Fracolli, & Zoboli, 2009).

Assess the child in the family context means the ability to assess the "patrimony" of that family. Patrimony refers to the set of features that ensure greater security and standard of living. Contrary to what many think, patrimony refers not only to material goods, but also to personal and relational skills. Therefore, intervene in a family context it takes not only to look to the needs, but rather strengthen their capabilities/their assets so that the family can overcome their needs (Chiesa, Fracolli, & Zoboli, 2009).

In a reality where professionals have difficulty to operationalize health promotion actions because of the lack of technology, the pilot deployment of Windows Project pointed out that their technologies could support the promotion of actions of health and child development as well as strengthen families of children (Chiesa, Fracolli, & Zoboli, 2009; Almeida, Fracolli & Chiesa, 2008).

The existence of a partnership established between the City Department of Health of São Paulo and the School of Medicine Foundation of University of São Paulo for the management of health services in the micro region of Butantan in São Paulo (Project West Region), opens the possibility of permanente education of professionals who are already part of the FHS and the Support Center for Family Health (SCFH), as well as the training of undergraduate students of medical schools, nursing, dentistry, speech therapy, physiotherapy and occupational therapy in that territory.

In this context, the implementation of the Windows Project technologies becomes favorable, since they are validated to widen and improve the care of children, with emphasis on strengthening child development, as well as the Butantan region require ongoing innovative education and training of professionals in healthcare.

The research entitled "Promotion of improvements in primary health focused on child development: strengthening professionals and families" proposed to assess the implementation process of the second edition of the Windows Project technologies in the core network of micro-region of Butantan. As part of this research, the aim of the present study was to evaluate the incorporation of the technologies of the Windows Project by physicians and nurses of the basic network of this micro-region, in order to contribute to its implementation.

2. Methods

It is an evaluation research with triangulation methods. Triangulation was due to the realization of "Kirkpatrick Four Levels of Evaluation - reaction, learning, behavior and results."

The Level I assessment (reaction) is to assess the reaction of the participants of education / training, ie how they react or what is the satisfaction of these participants in relation to the training received (Kirkpatrick & Kirkpatrick, 2006). The Level II evaluation (Learning) consists of evaluating the seizure of the training content of the participants, leading them to a better understanding of the transmitted concepts, development and / or improvement of skills and changes in their attitudes (Kirkpatrick & Kirkpatrick, 2006). The Level III evaluation (behavior) is to assess the change in behavior of participants in the education / training (Kirkpatrick & Kirkpatrick, 2006). Finally, Level IV evaluation (results) is to assess the scope of the proposed objectives with the education / training (Kirkpatrick & Kirkpatrick, 2006). The study was approved by the research ethics committees of the Nursing School of the University of São Paulo and the Municipal Health Secretariat, process numbers 145,626 and 151,088, respectively. The research subjects were the physicians and nurses of the Family Health Units belonging to the Western Region Project (teaching platform, research and assistance of the University of São Paulo). To compose the final sample of the research physicians and nurses trained teams should participate in all levels of assessment.
In all participated in the survey in the first two levels 22 nurses and 12 physicians. For final sample participated 9 physicians and 17 nurses belonging to 18 health teams from 6 Family Health Units. The "Workshop of FHS teams to use the Windows Project Technologies" was held between March and December of 2013. Data collection from Levels I and II occurred in the period of training and was applied an evaluation form in the reaction in the end of the workshop and pre and post-qualification questionnaire for the assessment of learning. The collection of Levels III and IV occurred between May and October of 2014, at least seven months after the training, allowing time for the Family Health Teams to change their practices. To collect the data from the Levels III and IV happened during the meeting supervisions with the Health Teams.

The initial training was structured to three days of 8 hours each day. Each group consisted of 3 different teams from different Health Units. After conducting five training groups we were asked to change the training structure because some teams were not able to participate in the day that they were proposed, and also the workload of the professionals who prevented them from leaving from work for 3 days. The new training was structured to occur in 1 day. The participants received the material in advance with a list of questions to be discussed in the team after reading the material. The teams discussions was synthesized on the training. To collect the Level II in the second training model was sent with the material the pre-qualification questionnaire and oriented so that participants fill out before reading the material. Data from Levels I and II were tabulated and analyzed with SPSS version 19.0. And the the data of levels III and IV was analyzed using to Bardin's content analysis.

3. Results

3.1. Characterization of participants

The professionals were mostly aged 30<40 years were formed mostly in Private Higher Education Institutions. They were expert in the field working (public health, family and community medicine, family health and public health) as it corroborates the fact that they have mostly younger than 40 years and, in recent decades, offering specialized courses and residence in the Health Family have increased. Most professionals involved in the research, worked for less than five years in the Unit.

3.2. Level I - Reaction

The results of the Reaction Assessment were crossed with the type of training (1 or 3 days) and the professional category (nurse or physicians), but there was no statistical difference. Overall, the training was well evaluated. A limitation that we can point was precisely the construction of a Reaction Assessment without prior experience in psychometrics; this kind of question construction may have induced more positive responses than negative.

3.3. Level II - Learning

The answers of the evaluation of learning were first compared between pre and post-training. The intention of the questionnaire was not evaluate content as right or wrong, but rather how much they "improved" knowledge on the subject after the training. Between pre and post-training was only statistically significant difference in 5 questions: question10 (It is the health professional role to encourage the family to care and talk to the child); question 14 (Health professionals need to know the family hygiene and difficulties for its maintenance, as the strategy stimulation of psychomotor development.); question 18 (Identify and strengthen the patrimony that the family has it is important for the assistance in primary care.); question 19 (The health worker should help the family identify and trigger social networks they have.); and question 20 (The family's social networks are essential resources for family health sustainability.).
In general, the questions that were statistical differences were part of five major concepts used in training. But the great concept aroused in professional was the first, comprehensive care, which has encouraged the expansion of the professional vision for child development. This expansion of vision leads the health professional to take responsibility to know closer to family routines and encourage family participation in children’s development in the routine care such as feeding, grooming and play. The question on which there was a higher statistical difference was the identification of family patrimony. Family patrimony on child development perspective is a common concept in the area of social assistance, but new in healthcare. This view sees the patrimony as the potential that the family has (for example, social support network) (Chiesa, Fracolli & Zoboli, 2009).

Evaluation of Learning was also crossed with the professional category and type of training. The questions that were statistically significant differences were question 3 (Domestic routine care is an important form of stimulation of the child and the health professional should recognize it); question 7 (The health professional role is to help the family identify the different needs that the child has at each stage of its development); Question 10 (The health professional role is to encourage the family care and talk to the child); the question 11 (The health professional role is guiding the family to encourage greater independence of the child in daily activities such as dressing, bathing, eating and playing); and question 18 (Identify and strengthen the patrimony that the family has it is important for the assistance in primary care). On all these questions, there was an increase in the reliability of the answers after the training.

In question 3 nurses increased their agreement in the pre answers and post-training, while physicians decreased accordingly. The same occurred in question 7. In the question 10 participants of 3 days of training increased the agreement in response after training and nurses increased their agreement regarding cash-outs to physicians, but both were up agreement. In question 11 who participated in 3 days of training increased the agreement on the answers, and those who attended one day of training had a decrease in compliance in the response. Finally, on the issue 18 participants of 3 days of training had an increase in agreement in response after training, and as in question 7 nurses had a higher mean that physicians, but both increased the consistency of pre to post training.

3.4. Level III - Behavior

Based on the supervisions, some changes in professional practice were observed:

**Change 1 - Clinic Expansion into the practice of consultation (medical and nursing)**

Within this category are allocated the experiences of the professionals who reported some change in their clinic.

"What realized that changed most was the issue of stimulating the child, especially the play is being part of the work of the team" (Nurse of Family Health Unit 2).

"I felt much difference in the consultations, the Family Booklet ends guiding to discuss more aspects, I end up being able to work more aspects in the consultations" (Nurse of Family Health Unit 5).

"I could not use the Family Booklet still due the changes that happened in the team, but I noticed a change in the consultations and groups" (Nurse of Family Health Unit 5).

**Change 2 - used the Family Booklet in their practice**

Within this category are allocated the experience of professionals who are using the Family Booklet.

"We deliver the Booklet for all pregnant women in the area, I noted down in pencil on the booklet the next date marking and alter the tracking spreadsheet" (Nurse of Family Health Unit 4).

"Immediately after the training we deliver the material, I followed for a while noted in the chart, but I confess that the work overload disturb a lot and I do not continued" (Physician of Family Health Unit 3).

"We deliver the booklets to families with pregnant women and children <1 year. The community worker who delivered the booklet, but to open and start using the booklet with the Family the nursing assistant or I went along" (Nurse Family Health Unit 5).

"I found the material easy to understand, it is well illustrated and colorful ... just me and the nurse who filled the Booklet" (Physician of Family Health Unit 5).
**Change 3 - Incorporation in their practice of theoretical concepts related to Family**

Within this category are allocated the experiences of professionals that mentioned changes in dealing with families.

"Families find it strange when I ask them to bring a companion in prenatal consultation" (Physicians of Family Health Unit 4).

**Change 4 - Work Organization**

Within this category are allocated the technology institutionalization of practices within the Health Unit.

"We are standardizing the use of Windows Project in the Unit so there is no conflict in population if each team use it in a different way .... We are dividing all the skills in the Family booklet by professional category" (Nurse of Family Health Unit 4).

**Change 5 - Family stimulus for technology appropriation**

Within this category are allocated the experiences of professionals who encouraged families to appropriate this technology.

"I encourage families to read the booklet and bring their questions in consultations" (Nurse of Family Health Unit 5).

3.5. Level IV - Results

The expected results of the IV level of "Empowerment of FHS teams to use the Windows Project Technologies" were that physicians and nurses of the teams incorporate the technology into their practices. It was considered that the subjects incorporate the technology when they had distributed the Family Booklet, were accompanying these families and had modified their practices. The partial incorporation was considered when subjects did part of what was observed for the incorporation of technology. And not incorporation was considered when there was no kind of change or delivery of the material.

Altogether 3 teams incorporated the technology, 9 teams incorporated partially and 6 teams did not incorporated. Regarding the professional category 3 nurses and 2 physicians have incorporated the technology, 9 nurses and five physicians partially incorporated and 5 nurses and 2 physicians have not incorporated the technology.

The incorporation of technology data were crossed with the characterization of the subjects and the type of training they have undergone, but there was no statistical difference.

The dimensions emerged from their comments, which influenced the technological incorporation were:

1. **Ethical, technical, political and economical dimension of the technology itself**

   "I did not give account of filling the material" (Physicians of Family Health Unit 3).

   "Our biggest difficulty was to remember and stay filling the Booklet." (Nurse of Family Health Unit 3)

   "The material helps to systematize the query" (Physicians of Family Health Unit 1).

   "The Windows Project guide the discussions of more aspects in the consultations" (Nurse of Family Health Unit 5).

   "One of the impediments to the use of the material is the fact that is more work" (Nurse of Family Health Unit 5).

2. **Dimension Acceptance and Patient Satisfaction**

   "Our greatest difficulty is that pregnant women bring the Booklet and read it" (Physician of Family Health Unit 4).

3. **Dimension Health Service Characteristics**

   "We had no condition to use the material, due to Unit renovation and ONA." (Nurse of Family Health Unit 2).

   "We do not distribute the booklet, because it was something vertical and imposed on the team, and we had other emergency demands in the Team" (Nurse of Family Health Unit 2).

   "The overload of work was my greatest difficulty" (Physicians of Family Health Unit 3).
"We have a committee with the physicians responsible for teaching and research and the facility manager to standardize the windows Project for all Teams" (Nurse of Family Health Unit 4).

"I have no time for that" (Physician of Family Health Unit 1).

"I gave some booklets but have not had time to follow up the families" (Nurse of Family Health Unit 1).

"Renovation of the unit and the lack of community workers on the team difficult the work" (Nurse of Family Health Unit 5).

4. Dimension Work Process

"I couldn't use the material because the physician is new in Team" (Nurse of Family Health Unit 5).

"I have no physician on team... you could send someone of the research to do the application of Windows Project with families" (Nurse of Family Health Unit 6).

"As the physician had not done the training we have not initiated" (Nurse of Family Health Unit 6).

4. Discussion

4.1. Level I - Reaction

The training offered to the Family Health Teams joined the Continuing Education of Western Region Project. The whole process of training and planning was discussed with the Continuing Education. The training model adopted despite of seeking the problematization of everyday work of the health professionals, our training still remained in the logic of "school model" where the professional is isolated from their working environment in order to be touched by the new knowledge being enabled (Brasil, 2009; Souza, Galvão & Roschke, 1991).

The great expectation in a training is that the transmitted knowledge is incorporated into the work practice, unfortunately, the real changes are not equal to the efforts and resources invested (Brasil, 2009).

Necessarily educational reasoning processes should emerge from the work organization. Many of the problems related to the "reformation" of professionals is that the demand for reform comes from the the outside and is not derived from the work process itself. It is also necessary to incorporate issues of specificity of work in order to know the technology and knowledge already used (Souza, Galvão & Roschke, 1991).

In educational processes, the most common problems that occur emerge from the fact that the training is disconnected from concrete professional practice and, therefore, workers are inserted in a casuist way, the infrastructure of services is weakened, besides using traditional methodologies for the training of professionals (Souza, Galvão & Roschke, 1991).

4.2. Level II - Learning

At Level II, there was not much difference between pre- and post-training. The neuroscience content as knowledge of field is relatively new, started in the 1990s, but, like most of the subjects had less than 40 years of age and under 20 years of under graduation, this content was not considered new to some. Another important point is that 22 subjects participated in one day of training, and the contents were unfortunately addressed in a very superficial way. In addition to these issues, some providers responded the same response throughout the questionnaire; this fact demonstrates the lack of professional commitment to answer truthfully what they really believe about the issues addressed.

The National Policy on Permanent Education in Health states that most of the effort to achieve learning depends on the capacity (Brasil, 2009). Experience shows us that definitely one day training, the reading strategy and prior discussion were not effective for the proposed learning. The school model of training requires the training of a group in a classroom, isolating it from its real context (Brasil, 2009). This training is mediated by one or more experts in the field who will share his knowledge in order to be incorporated into the professional practice of the trained group (Brasil, 2009). Over the years, experience has shown that the practical application of knowledge trained not reach the expected results in proportion to the efforts made in training (Brasil, 2009).
4.3. Level III - Behavior

As stated above, the expected changes after training generally do not follow the same amount of concrete changes (Brasil, 2009). Often, the time for change to occur is not enough. For there to be a stronger change, there needs to be changes in the institution and in the way in which the work process is carried out and it often does not depend on us, mediators, but rather the structure of the institution and management processes (Brasil, 2009).

To occur a more concrete change, a change is necessary including in the training of these professionals. We need to occur training with a focus on Permanent Education of the professional, whose teaching and learning are incorporated into the daily life of organizations, and their problematized clinical practice (Brasil, 2009). In this perspective, professionals are seen as reflective actors practice and builders of knowledge and not only receptacles of new information. The team is covered in group and understood as an interaction structure, and educational spaces transcend the barriers of health institutions (Brasil, 2009).

4.4. Level IV - Results

In some of the speeches of professionals, could notice a lack of autonomy on the part of nurses. Unfortunately, the practice of Family Health Teams still find nurses without autonomy, it cannot play a leading role before the team they are responsible.

Historically, the nursing profession has in its interior a social division of labor and subordination in relation to the hegemonic knowledge represented by the medical profession (Bellato & Pereira, 2006). The autonomy of the nurse has been an important theme throughout the evolution of the profession and how these professionals show themselves to their teams (Gomes, 2005). The field of knowledge is considered very important for the establishment of professional autonomy (Bellato & Pereira, 2006; Gomes, 2005). It is through the establishment of knowledge that nurses conquer their space and exercise their professional autonomy with respect (Bellato & Pereira, 2006; Gomes, 2005).

The professional autonomy is closely linked to the labor process, which has been changing up over the years especially, due to the advancement of science and the incorporation of new technologies in professional practice (9). The work team set up in a change in the work process in recent decades (Peduzzi, 2003). To Peduzzi (2001), a health team is a collective work process that sets the reciprocal relationship between technical interventions and the interaction of the agents (Peduzzi, 2001). The space and the autonomy of the nurse in a team depend on the division of labor, which can be uneven because of the hierarchical relationship between professionals. For a coordinated work, are need the integrality of health actions and the awareness of professionals (Peduzzi, 2003).

Another difficulty found between the lines of speeches of the professionals is the issue of turnover; this is a problem that unfortunately we find in Family Health Strategy. The high turnover of professionals consequently ends up disrupting the teams who are overwhelmed, trying to make the work of the professional left (Medeiros, 2010). The output of a professional team cause a break at work undermining the longitudinality work (Medeiros, 2010).

The Family Health alone already has a heavy workload. Each Team is responsible for up to 1,000 families or 4,000 people (Brasil, 2006). This amount of families brings an enormous heterogeneity to the Teams of a single unit, as each has in its own micro-area health characteristics and needs. Because of the great demands often Teams need to prioritize the needs, which ultimately hurt the entry of a new work proposal like ours, especially if the team area's greatest need is not a child. With regard to user satisfaction, it is common on the strangeness of something new (Trad, Bastos, Santana & Nunes, 2002). To create new habits takes time, and this will depend on the teams own commitment to the accompanied families (Trad, Bastos, Santana & Nunes, 2002). Although the teams have expressed difficulty that families bring to the consultations the Family Booklet, the families interviewed, from the teams that incorporated technology, expressed that they are enjoying the material, are reading and not experienced difficulties with it. Many of the questions that end up coming with the reading of the material are taken to consult with the physician or nurse.
Finally, one of the greatest impasses in the incorporation of the Window Project technology was the very professional training process. Educational processes in a health service should be part of the professional work process. There must be a constant management and monitoring of these educational processes (Souza, Galvão & Roschke, 1991). This was not seen in the trained units. In some units, the manager hardly knew what it was the technology that the teams were being trained, despite all the training process have been agreed and discussed with the management of the units. In trained units, besides the traditional figure of the manager, there is the figure of the Physician responsible for Education and Research (PER). This professional is who bridges the gap between teaching and research with clinical practice in the Unit. Some PERs involved with the process of empowering technologies of the Windows Project, but others do not interfere, did not even know what it was or even, unfortunately, did not agree and barred the implementation of technology in the practice.

Souza, Galvão, Santos & Roschke (1991) refer to be necessary within the infrastructure of a service the role of trainers/supervisors with university degrees who provide direct services to users, organize and supervise the work process and take responsibility in training processes of workers. Often, this role is performed by the Permanent Education sector. In our case, the training were part of the educational process of the Continuing Education in the region. We as University, did the role of trainers, but as academy cannot play the role of supervisor of the work process for not being there on the daily bases to follow the Teams.

In general, the educational processes have not contributed to resolve the concrete problems of the Teams, which express the dichotomy between thinking and doing (Brasil, 2009; Souza, Galvão & Roschke, 1991). In order to decrease this dichotomy, it is necessary to know all the dimensions of the work process to raise the educational needs of each Team (Brasil, 2009; Souza, Galvão & Roschke, 1991). This was perceived by speaking with some professionals who expressed disgust to participate in training for something they did not see the need. This is one of the major points that influence the incorporation of required technologies, for if the professionals who are inserted in the context not see the need they will not modify their practices. It is necessary to build with each Team individually educational processes, displaying and monitoring the reality of the work of the Teams as to the suitability of Child Development promotion technologies.

5. Conclusion

The incorporation of technology is directly linked to lifelong learning process of professionals. Supervision is an important component of lifelong learning. In the case of Windows Project training, supervision for control of the work process as a whole was not planned properly in the training process. We set out to supervise the trained Teams, but our supervision ended up being more superficial, for we, instructors, we are part of the academy, that is, we are not part of the professional work process and, as a result, we do not have the possibility of follow the daily lives of teams helping them and encouraging them.

Perhaps the incorporation of technology would be better if in fact we could have a relationship with the work process. Go to the site and take a course or training does not impact both in technological resources which can be seen in this study. Care for the development of children is a demand of the Western Region Project, yet the professionals working in this region need to see this need, and need to desired improvement in child development. There is no uso in imposing to professionals without building the need with them.

Another focused situation was the very logic of the work process, which is governed by production. Generally, the professional will prioritize their work according to the production that is demanded from them. This is also a fact that will make a proposal like ours aside by the professionals, because in terms of production in child development they are charged for the amount of childcare consults they do. The routine visits follow a traditional protocol on forms that must be filled by professionals. As the demand is great, and time is short, professionals end up staying only what they are charged. Without an educational process built with professionals and a working process that will allow the professional for more freedom in their clinical practice, technologies like the Windows Project will struggle to be incorporated by health professionals.
5. References


