# Computer-Aided Educational Intervention in Teenagers Through Internet Social Networking

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*Educational institutions have the great challenge and the commitment not only to teach mathematics, science and language. They also must contribute to forming the new citizens. These new citizens should be critical and creative social actors that participate in the construction of better ways of coexistence. In this paper we propose educational strategies based on the use of Internet social networking sites as Facebook®, Twitter® and MySpace®. These strategies must enhance the social development of the students, taking into account their peers' subculture.*

*Povzetek: Predlagane so učne strategije na osnovi socialnih omrežij.*

## 1 Introduction

The school, as educational institution, is the essential nucleus for the formation of future citizens and social actors [1]. In fact, it is the place of meeting of diverse individualities and social activities where values are affirmed, as well as forms of being and coexisting.

However in our contemporary societies, from the least developed to the so called "first world" countries, we find now a social environment of great violence and brutality that influences in a negative way the development of the young people, driving them toward an aggressive cruel behavior.

Therefore the educational institutions have the great challenge and the commitment not only to teach mathematics, science and language. They also must contribute to the reconstruction of the social fabric by forming the new citizens. These new citizens should be critical and creative social actors that participate in the construction of better ways of coexistence. According to Stacey [2], when people communicate with each other to accomplish the joint action of living and acting together, they are continuously relating to each other in a responsive manner. Marion [3] asks what catalyses social behavior and concludes that humans are said to cooperate because that is the best way of achieving individual goals. In addition, individual human action is catalyzed by symbols: ideas, concepts, opinions, beliefs, emotions, projections and values like the understanding of the personal differences, the cooperation for the well of the collective whole, the search of justness and equity and the practice of tolerance.

In this paper we identify in the actual school practice obstacles and facilitators for the individual and social development of the students for living together and propose educational strategies based on computer-aided Internet social networking such as Facebook® and Twitter®.These strategies must enhance the social development of the students, taking into account their peers' subculture.

## 2 The School Social Development Objectives for Living Together

Let us consider a school group community as a complex system composed by the teacher and the students peer group, defined as a collective of human agents that interact with one another in a common internal environment defined by the school rules and the group interactions. According to Mead [4], it is in the detailed interaction between people, their ongoing choices and actions in their relating to each other that their minds and selves arise. However, the schools are located in neighborhoods where are seated families that belong to very diverse socioeconomic strata. In the school the adolescents meet having different socialization processes. Muuss [5] affirms that the socialization of adolescents depends on the family and the neighborhood where the individuals live and develop.

Therefore in the school there is a great diversity of individuals with different behavior patterns, guided by a multiplicity of beliefs, values and customs that give place to misperceptions frequently in conflict. The socio-cultural differences of individuals and families present a diversity of values, beliefs, lifestyles and behavior rules that are a part of a plural society. This diversity is reflected in the students peer group. In fact, these diverse individualities, nevertheless the differences, have a strong tendency to constitute peers' groups where adults are left out. According to Stacey [2] "organizing is human experience as the living present, that is, continual interaction between humans who are all forming intentions, choosing and acting in relation to each other

as they go about their daily work together". Handel [6] affirms that the peers' groups are complex organizations that perform a socialization function among their members. In these organizations the members establish goals and make agreements directed to certain matters, interests and concerns. These agreements must follow certain procedures.

Savin[7] sustains that from a perspective of the human psychological development, it is important that inside a net of interactions the individual finds a place for itself, a status. In this net it is necessarily to have a pattern of power relationships based on the different capacities and personal abilities, being this pattern a constant feature in the structure of human relationships.

In fact, the adolescents have such a great necessity to belong to a peers' group that they agree to accept the conditions that they must cover in order to be accepted. These conditions depend on the group's identity, its own values, belief and behavior systems and are related to the image that the group wants to express. Among these requirements could be mentioned the physical characteristics, certain specific abilities, and a sense of humor toward himself.

The peers derive their standards to think and to judge, their individual references, behaviors and values from their group. According to Corsaro [8], many activities of peers' interaction look for a sense of self and opposition to the adult world. The peers' group defines types of relationship that are qualitatively different from the relationships with the figures of authority. Some of these new types of relationship are reciprocity (not possible in the relationships with the adults), identity, belonging, solidarity and support. The peers feel that they participate at the same level in decision-making and the establishment of norms for the group. Certainly, the group rewards its members, but it also punishes them with distancing, ostracism and other disapproval expressions.

In accordance with this teenage subculture, the objective of forming citizens that have the sensibility of participating with the other ones in the construction of a living together community, it is a work that is one of the main challenges of the education. In fact, the school must form citizens to be able:

a) To understand and accept the principles and forms to live together in a heterogeneous community.
b) To understand the common benefits of collaboration and mutual help.
c) To balance the respect to the individuality with the collective good.
d) To recognize and respect the personal differences.

Evaluating in the actual school practice the accomplishment of these objectives, we found [9] the following conflicts in the practice implementation that hinder the educational targets:

- The prevalence in the school of the control, surveillance and punishment measures. McGregor [10] distinguishes between autocratic and participative styles of group management. He argues that autocratic styles are based on the view that

people dislike work and avoid it if they could. They need to be coerced into working, being punished if they do not work and rewarded if they do. This is the "stick and the carrot" approach that is still so prevalent in schools.

- The absence of dialogue between teachers and students. It is important that the rules are the result of a practical ethical knowledge. Therefore, they should contemplate the rights of everybody. [11].

The previous results let us pose the following questions:
- Which educational strategies could be implemented in the school for developing effectively the future citizens?
- Is it possible a different organization from the current conventional forms?
- Is it possible that the teachers as educational agents go so far as to modify their behaviors in order to become better builders of future citizens?

## 3    Proposals for a New Educational Intervention Paradigm

It is important to recognize that the adolescents possess natural organizational powers that it is important to guide with the educational intervention for their own social development. Each individual is like an attractor, and when individuals come together to form a group, they resonate with each other, producing through their communication a social attractor [9], [3].

The word potency refers to the characteristic quality of the human being to advance toward objectives when the person is endowed with self-reliance and is able to accomplish her objective [3]. However, potency is not enough. The person needs a reference frame about the natural and social world, that should be structured and have an internal coherence, where she should find her place.    Without this framework she will get confused and will be unable to act upon in a proper way. Savin's reflection is similar [14], since he refers to the importance that the individual finds a suitable place inside a net of interactions.

Moreover, the adolescent also needs a set of objectives as the focal point of her actions and the expression of her effective values. This necessity to have defined objectives responds to an existential primary need that demands satisfaction, without caring the means.

The contributions of Fromm [12] and Savin[7] are the base to understand the adolescents' auto-organization, the individual necessity to belong to a peers' group and the origin of the leadership that some of them impose over this organization. However when these necessities are ignored then the adolescents in their social diversity are not properly guided. They end up forming contesting groups mainly with tendencies of untamed dominating power.

Sherif and Sherif[13] suggest that the individuals must be guided toward humanist and not destructive goals, because their nature is malleable, notwithstanding that by nature they differ in capacity, abilities, resources and experiences. It is starting from this differentiation

that they can contribute to the solution of their problems. The uniformity is not a source of strength in a group.

What we want to emphasize is that in the adolescent peers' groups we can find the organizational potency, the search of goals, the values of reciprocity, solidarity and belonging. However, without an educational guide from the school this emerging social organization can take any form.

Taking into account that the maintenance of a relationship is dependent upon the members each striving to reach an acceptable balance between their own desires and needs and that of others, according to the approach of Relational Dialectics [14], we developed the following proposals [9]:

1) That the dialogue and the agreements be the means to solve novel situations. Following the perspective of Gadamer [15] about the community sense, the practical knowledge that arises through the contrasting experience is a phrónesis, because it is knowledge to distinguish what is good and what is bad for the community. This moral knowledge subsumes the individual preferences to the communality correct, making familiar to the students a community sense that before was strange. These dialogue and agreements may be easily implemented through Internet mediated social networks discussions through the creation of communities of practice [16], [17], [18] in the classroom with communications through Internet resources like Facebook®. According to Miranda-Pinto and Osorio [19], in a community of practice supported by the information and communication technologies the virtual interactions define new ways to reinforce the cooperation and the knowledge construction among peers.

2) That teachers and pupils, by means of the dialogue and the argumentation, participate in the making and upgrading of the rules, defining collectively the principles, rights and responsibilities of the members of the community to make possible the coexistence for the common good, nevertheless the plurality and the personal differences. In fact, 59% of students with access to the Internet [20] report that they use social networking sites to discuss educational topics including career and college planning, and 50% use the sites to talk about school assignments. Some parents and teachers say that using these sites helps students improve their reading, writing, and conflict resolution skills and learn to express themselves more clearly.

3) That the values that strengthen the community sense like friendship, respect, participation, solidarity, common good and the feeling of belonging to a community are encouraged. Under the surface of the social, individual resonances harmonize in the sense that people develop a shared view. Prigogine [21] casts his theories in terms of entities resonating with each other and evolving as collective ensembles. Therefore a strategic policy enhancing the above values through the use of Internet based social networks may result in the development of social

attractors that reproduce themselves changing the social pattern.

4) That the rules take into account the diverse needs for the members and their interactions. Langton [22] talks about the inability to provide a global rule, for changes in a complex system's global state, making it necessary to concentrate on the interactions occurring at a local level between agents in the system, like those of social networks. He states that it is the logical structure of the interactions, rather than the properties of the agents themselves, which is important, thus potentially elevating interaction to primacy.

These proposals are further supported taking into account the organizational power of adolescent peers' groups.

## 4 Organizational Power of Adolescent Peers' Groups

In the school the adolescents, in spite of their differences, have a strong tendency to constitute peers' groups where the adults are left out.

The Internet social networking as Facebook®, Twitter® and MySpace® and photos and video sharing sites such as YouTube® have emerged as new media very popular among adolescents and have shown a big impact on the organization of adolescents peers' groups.

We think that this trend can be developed educationally, putting emphasis in its positive potential [12]

The school has a functional structure that could be used to guide the suggested peers' group policy. The school has teaching and learning objectives, collective projects and practices, implicit socialization actions in the teacher-student relationships, behavior rules and sanctions. All these organizational elements should be used to implement an integral adolescent socialization program (See Figure 1).

In this program the adolescent internal values that are shown in the peers' culture like reciprocity, identity, support, self-reliance, friendship, belonging, solidarity, organization, recognition and respect should be reinforced and consolidated as behavioural attractors of
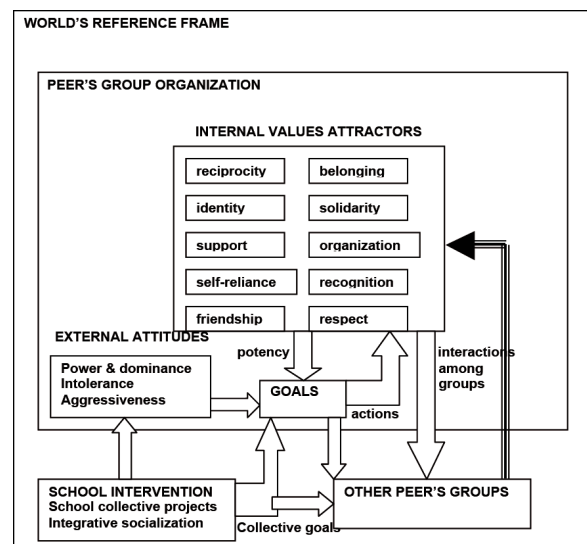


Figure 1: Integral Adolescent Socialization Program.

the adolescent's culture. This policy will permit to get the socialization goals to overcome the power and dominance attitude, the intolerance and aggressiveness not only among individuals but among different peers' groups.

Some school projects like the organization of school sport teams to compete against other schools, the participation in science fair projects, theater festivals, school musical bands and community projects imply the student's individual active participation in community activities. These community activities could be the means for the students to become responsible social actors able to contribute in organizational forms for the social coexistence and collective good [9]. Individuals join groups, motivated by internal values attractors, creating a collective whole that is more than the sum of their individualities. If some of these internal values are related with living together in a heterogeneous community with a balance between the respect to the individuality and the collective good and participating in the definition of the collective principles, rights and responsibilities of the members of the community then this peers' group will affect the way of how their members evolve [11] improving the coexistence with others peers' groups.

The challenge for parents and schools alike is to eliminate the negative uses of electronic media while preserving their significant contributions to education and social connection [20].

In fact, it is important that inside a net of interactions (like Facebook® and MySpace®) the individual finds a place for itself, a status [23]. In this net it is necessarily to have a pattern of power relationships based on the different capacities and personal abilities, this pattern being a constant feature in the structure of human relationships.

## 5     Organizational Elements for an Intervention Proposal in the School

The school has a functional structure that could be used to guide the suggested peers' group policy [9]. All these organizational elements should be used to implement an integral adolescent socialization program through the implementation of school communities of practice supported by Internet social networks sites like Facebook®, MySpace® and Twetter®. Examples of these collective projects and practices to implement an integrative socialization of the students through the social network media are the following:
1)   The discussion of actual problems affecting directly the young people like VIH, drugs and other health issues, professional training, labor insertion, family relationships, etc.
2)   The discussion of community level problems, like security problems, civil rights, civil protection plans for emergencies (earthquakes, floods, tornados, landslides, etc), community waste management, sustainable community development, etc.

3)   The discussion of global world problems like global economic crises, sustainable development, global warming, global epidemics, global education, etc.
4)   The individual contribution of the student to the work in class (presentations, discussions, questioning, inquiring).
5)   The organization of educational games and sport teams.
6)   The organization of the working environment in the classroom.

A community of practice supported by Information and Communication Technologies (ICT) used as a form of participation can promote different social experiences as well as a process of self-training. To participate in these communities is necessary to consider the following aspects.
1)   Internet connection, personal computers and a proper platform where the community is structured.
2)   The communication established in the community can be done in two ways. Synchronously through chat where communication occurs in real time with those who are online. Asynchronously, through dialogue forums that allow a more extended participation without being all in line. This last type of communication allows everyone to control their participation, re-read the previous messages and ask for any more information.
3)   The sense of community develops when the participants are active elements trying to reach common goals.

## 6     A Methodology for the Operation of School Communities of Practice Supported by Internet

We propose below a participatory synthetic methodology based on group dynamics for the operation of school communities of practice supported by Facebook®. This methodology has been proved successfully in college level students and its application to secondary and preparatory school levels is under way.

The methodology consists of the following eight phases:

a) *Integration of the specific community of practice*. The community of practice involves the students of the school class participating in the socialization program. The students should register at Facebook® with an alias or nickname of their own choosing, in order to maintain anonymity as possible to allow them to break away from emotional factors, friendships and enmities during the exercise for greater objectivity of the procedure. The participant list is sorted alphabetically by surname. Then the teacher explains the background to the problem to be analyzed, why he/she has called students as experts to be consulted, the objectives to be achieved through consultation and the mechanics of the session, emphasizing the importance of collaboration of everybody.

b) *Individual consultation*. The group meets in a classroom. The teacher asks an appropriate question for

purposes of consultation and leaves as a homework to each of the participants to give three to five responses that are relevant. It is desirable that the number of responses does not exceed seven to only include the most important ones. Sometimes it is convenient to give an indication of the expected number of ideas per participant, for example, "enter at least five main factors that affect X". Sometimes the participant should select only those ideas that are most important, in which case it is asked, for example, "write the five factors most important for X".

c) *Exchange.* Each participant submits through Facebook® each of its n responses to a different participant, beginning with the participant who is next in the alphabetical list of participants. This process is repeated until no participant has responses to distribute. Upon receiving the responses of others, everyone should read them in order to be familiar with its contents. In case of doubt, the author of the response in question must clarify it. In this process each author is detached from their own ideas, focusing on those of others, creating an additional degree of anonymity that promotes the objectivity of the discussions.

d) *Grouping.* Then the community of practice meets again in the classroom for a Facebook® forum. In turn, each participant send one of the responses he/she got to the group. This selected response is called stimulus response. If any of the other members of the group believes that there is some relationship between this stimulus response and any of the responses she has, then he/she takes turn to speak and, after writing and sending his/her response to all, asks for approval of the community("like" or "not like") to group this response with the stimulus response. The grouping criterion depends on the problem, and the teacher must clarify any doubt about it. Sometimes it is convenient to group similar ideas, or ideas related to the same subject, or phenomena that recognize the same cause or have the same consequences.

If he/she gets the approval of the majority, his/her response is put in a list together with the stimulus response. This process is repeated until no more responses can be related with the stimulus response. Then another participant selects and sends another response to the group as a new stimulus response, and the association process is repeated. This process goes on until all responses of all participants have been grouped in lists. Each list ist held by the owner of the corresponding stimulus response. In some cases, a list can have only one isolated response.

e) *Synthesis.* The holding participant analyzes the content of each of the lists that he/she has and proposes a synthesis of the content expressed in a sentence in a few words. The sentence should not be a simple aggregation of the content of the responses, but indicate the common essence of them. Likewise, each response must logically imply the synthesis. Finally, the synthesis should be as specific as possible and contain the maximum information.

f) *Dialectic.* In a new community Facebook®forum, the author of each synthesis will send it to the other

participants, together with the corresponding responses. This synthesis will be the starting point for a group discussion until the group adopts a final synthesis, which will be written as the final title of the list.

g) *Iterations.* Once titled all the lists, they will be subjected to a new process of association, repeating the steps of grouping and dialectical synthesis (in one or several iterations) until there remains only three to seven large general statements containing a hierarchical structure of minor statements.

h) *Presentation of the results.* Then the results are expressed as a schematic index of contents, with the major general statements as chapter titles and the hierarchical subordinated statements as sections, subsections, etc. of these chapters.

This technique must be adapted to each case. The teacher's role will be to introduce in each case the modifications and extensions necessary to achieve the desired goals, including combining it with other group dynamics techniques.

This technique has the following advantages:

a) It stimulates individual creativity, forcing participants to generate ideas.
b) It promotes the concrete expression of ideas by requiring that they are properly written.
c) It avoids the spread in the discussions, focusing the discussion on very particular points.
d) It ensures logical, systematized and prioritized outcomes, resulting from agreements.

Furthermore, with respect to the participants, this technique allows the teacher to:

a) Involve the participants in a process of awareness and sensitivity in order to correct for self-discovery their wrong attitudes.
b) Integrate a team that worked before as incoherent group.
c) Increase and harmonize the relationships of each team member.

This technique through Facebook® is applicable both in the definition of what is desirable, as in the exploration of possible futures, plus it can also be used in the process of identifying objectives and the evaluation of alternatives.

This community of practice does not replace other educational approaches but complements and adds dynamics never before considered.

One critical factor for the success of this proposal is an adequate teacher training in ICT and its modalities and to provide students with self-training contexts that promote collaborative practices between teachers and students.

The objectives that are considered essential to a community of practice are:

1. To promote cooperation and collaboration among participants on educational topics;
2. To promote the exchange of ideas to support school practices in classroom settings;
3. To encourage communication across the different thematic forums promoting educational issues and reflection;

4. To encourage participation in the Facebook® forum as a means of social interaction developing friendship and cooperation among participants in the community.

# 7    Conclusion

We think that the values that strengthen the community sense like friendship, respect, participation, solidarity, common good, and the feeling of belonging to a community must be encouraged. The peers' community is the first kind of community encountered by the teenager when he/she tries to be independent from his/her family, where he/she shares values, objectives and interests. When individuals come together to form a group, they resonate with each other, producing through their communication a social attractor and a social hierarchy characterized by a leadership structure, the rules to be followed, and the sanctions to be assumed provided that the members are accepted in the group. In fact, under the surface of the social, individual resonances harmonize in the sense that people develop a shared view. Moreover, in the same school different opposing subgroups coexist that try to differentiate because of its strength, age, experience, abilities and daring. Therefore, a strategic policy for educational intervention should aim to transform the rivalry among these subgroups into a cooperative force with common interests at a higher level through computer-aided communication. This would enhance the values in the peers' subculture toward the development of social attractors that would change the social pattern toward a cooperative one at a school level [24]. This transformation could be implemented through computer-aided intervention strategies designed to make use of communication-oriented Internet social networks sites like Facebook®.

# Acknowledgement

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