

## ***Communication through Internet and Self-esteem in Secondary School Students in Chile***

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### ***Summary***

The objective of the present study is to find out how the use of the Internet is perceived and felt by the students. The sample was made up of 51 students from 4 educational establishments in the VIII, IX and X Regions in Chile. The Coopersmith Self-Esteem Inventory was used in the collection of quantitative data. Qualitative data was gathered using focus groups and in-depth interviews. The quantitative results indicate that there are differences between the evaluated groups with respect to self-esteem. The principal results of the qualitative analysis, are related to the students' experience of the use of computers, the use of the Internet and the experience of communication, observing in general a positive perception associated with learning and the use of technology.

### ***Keywords***

Self-esteem, motivation to study, communications, Internet.

### ***1. Introduction***

In Chile, as part of the reform of education, the Ministry of Education has created a national network that connects more than 7,000 educational establishments, both primary and secondary, throughout the country. It is called *Enlaces* (links) network. The aim of this educational network is to expand information technology to the majority of establishments in the country, constructing a national educational community (Ministry of Education 1990). More than 75% of these establishments have an internet connection and many of

them have had the opportunity to carry out collaborative projects with students from Chile and from abroad using this medium.

The development of collaborative projects using the Internet gives students and teachers the chance to communicate with people from different places, modifying the traditional space of the classroom and providing a medium to put education in a wide and new terrain (Sook-Hi, 1997).

The relevance of the cultural and communicational role lies in the fact that the students, when using educational networks, can investigate subjects through projects, can learn about life in other countries, can exchange email with students from other countries or from their own country, learning new ways of communication and work. It has been seen that they improve their learning in different areas, they learn to solve problems and they open their minds to new ideas adapting to the changes (Zea and Vargas, 1994).

It is possible to create intercultural learning environments through communication between students. It has been observed that through projects in which students from different cultures, ethnic groups or ages participate, they exchange information and share opinions, establishing friendships (Sook-Hi, 1997). Furthermore, international communications have a motivational aspect, that can stimulate the students to learn relevant facts about other countries, for example their culture, geography, language, tourism (Zea and Vargas, 1994). The contact with other countries stimulates finding out about their own country, in order to pass on this knowledge to the students with whom they are in contact (Campos, 1995).

The teachers who have had the experience of working with students using email, as well as offering the chance to communicate abroad, observed that it is a great way to open up to the world and that it is a very effective tool that increases the self-esteem of the students (Zea and Vargas, 1994; Sook-Hi, 1997). On the other hand, maintaining self-esteem has a powerful motivating function in the learning process (Garbarino y Stott, 1993).

### **1.1 Motivation, Self-esteem and School Performance**

In the process of learning, different cognitive and affective-motivational questions converge. These affect educational work positively or negatively (González, 1996). Therefore, when trying to improve students' academic performance, both questions must always be taken into account (García and Doménech, 1999).

For students to learn, it is essential that they are "able" to do it, as far as the capabilities, knowledge, strategies and skills needed are concerned (cognitive component). However, it is also necessary that they "want" to do it, that there is the necessary disposition, intention and motivation to learn (affective-motivational component) (Núñez and González-Pumariega, 1996). In the opinion of Pintrich and De Groot (1990), to achieve good academic results depends on the fact that students have the right "will" and "ability"; this leads to the need to integrate both aspects into the educational process.

The main variables, although not the only ones, when understanding the student's motivation are: self-concept and self-esteem, learning goals and emotions (those that can

be analysed from a personal and contextual perspective). Contextual variables are key elements in any educational situation and relate to the interaction between groups, teachers and students, contents, activities and evaluations (García and Doménech, 1999). As for personal affective-motivational, we find expectations and competence (Bandura, 1987), intrinsic and extrinsic goals set by the student (González, 1996), emotional intelligence (Pekrun, 1992 and Goleman, 1996).

Self-esteem, from a personal point of view, has an element of expectations, and it is the result of a process of analysis and integration of the information which stems from one's experience and feedback from significant others, such as fellow students, parents and teachers (García and Musitu, 1993a).

One of the most important functions of self-esteem is that of regulating one's behaviour through a process of self-evaluation and self-consciousness, bearing in mind that a student's behaviour can be, at a given time, strongly determined by one's self-esteem at this time (García and Doménech, 1999). Bandura (1987) indicates that subjects anticipate the result of their behaviour from their beliefs and from the evaluations that they make of their own capabilities, generating expectations of success or failure, which will have repercussions on their motivation and performance.

There is a significant positive correlation between self-esteem and the locus of control, whereby as the students' self-esteem grows, their causal attribution and performance will be improved proportionally. Thus, it seems that subjects with low self-esteem normally attribute their successes to external and uncontrollable factors (such as luck) and their failures to internal, stable and uncontrollable factors (such as low personal capacity). On the other hand, subjects with high self-esteem tend to attribute their successes to internal and stable factors (such as ability) or to internal, stable and controllable factors (such as effort) and their failures to internal and controllable factors (such as lack of effort) (García and Doménech, 1999; Garbarino and Stott, 1993; Machargo, 1999).

In order to explain a student's performance it is necessary to take into account not only real capabilities but also personal beliefs of one's capacity to carry out school tasks. The student's performance does not depend so much on real capability but on their believed or perceived capability (García and Musitu, 1993b).

Contextually, self-esteem is related to the social interactions that students have with significant others (parents, teachers and fellow students). That is to say, the information received from them, conditions students to develop, maintain and/or modify the beliefs they hold about themselves, and that will later influence their motivation and academic performance (García and Musitu, 1993a). Thus, the teacher's role is fundamental in the growth and change of self-esteem, because the teacher is the most influential person in the classroom. The students highly value the opinions and the treatment they receive from the teacher. A child who is ridiculed in front of his fellow students, who frequently receives criticisms from his teacher for his failures, whose autonomy and initiatives are systematically annulled, is receiving negative messages for his self-esteem. On the other hand, a student who is listened to, respected and who is being encouraged when failures occur, is receiving positive messages for his self-esteem (García and Doménech, 1999).

The role played by fellow students is very important, not only because it favours the learning of social skills or autonomy and independence with respect to adults, but also because they offer a rich context of interactions where the subject receives a great amount of information from his fellow students that will work as a reference to develop, maintain or modify his self-esteem, in its academic, social and general dimensions. The evaluation that the subject makes of his academic competence, depends on the school grades he obtains and the results of the process of comparing himself with his fellow students, which will determine his expectations of success and his motivation (Garbarino and Stott, 1993; García and Doménech, 1999).

The learning goals set by a student are conditioned by the perception he holds of his personal capacity (Bandura, 1987). Students with intrinsic motivation are driven by intrinsic goals such as desire to learn, curiosity, preference for a challenge and being interested in acquiring knowledge. The students with extrinsic motivation are driven by extrinsic goals such as good grades, rewards, positive judgements, parental and teacher approval and the avoidance of negative evaluations (García and Doménech, 1999). Intrinsic motivation is defined as that which stems from the subject himself, that is under his control and is capable of reinforcing itself; whereas extrinsic motivation is defined as, in contrast to intrinsic motivation, as that which stems from external factors and leads to the completion of a task (Pekrun, 1992).

In this sense, García and Doménech (1995) state that students with intrinsic goals have an intrinsic motivation, and it assumes on the subject's part an interest in the development and improvement of his capacity. On the other hand, students with extrinsic goals have extrinsic motivation, since they show a desire to demonstrate to others their competence and obtain positive judgements, rather than their desire to learn. These two groups of goals generate two different motivational patterns. The group with intrinsic motivation, results in students adopting a pattern known as "command", accepting challenges in order to increase their knowledge, skills and abilities; the group with extrinsic goals of motivation, leads students to a pattern known as "vulnerability", whereby students try to avoid challenges at school for the fear of showing little capability of carrying out a task successfully.

From a contextual point of view, Ames (1992) warns that there is a series of variables known as "situational", which have an influence on the goals pursued by students. Amongst them, the following series of elements related to the organisation of teaching and class structure stand out: the system of evaluation, the teacher's attitude, classroom organisation and the type of tasks. All these situational variables are grouped into three different dimensions: the design of tasks and learning activities (attractive and dynamic); how evaluation is carried out and the use of rewards; and the distribution of authority or responsibility within the class.

## **1.2 Emotions and learning**

Emotions are an important part of the students' psychological life and have a big influence on their academic motivation and cognitive strategies (acquisition, storage, information

recall), and therefore, in learning and school performance (Pekrun, 1992). Positive emotions towards school tasks produce a series of effects conducive to an increase in performance, as is the case of enjoying the carrying out of a task (García y Doménech, 1999).

Of the negative emotions in the school environment, boredom stands out. The first function of boredom is to motivate the student to find another task that gives higher rewards. Boredom leads to the reduction of intrinsic motivation and to cognitively escape from the task. As a result, the total motivation for the task will decrease, even in cases of high levels of extrinsic motivation (García and Doménech, 1999).

In this way, for students to feel motivated to learn content meaningfully, they have to attribute meaning to it, understand the logic of the content and associate positive emotion to the content being learnt (Coll and Solé, 1989). This depends on personal factors (self-esteem, beliefs, attitudes, expectations, etc.), but to a large extent it depends on how the learning situation is presented, how attractive and interesting students find it in order to get actively involved in a process of constructing meaning. Whether students are motivated to learn meaningfully also requires an optimum distance between what students already know and the new content being learnt. If the distance is excessive, the student's motivation is reduced because he believes that he has no chance to assimilate or attribute meaning to the new content being learnt, and if the teacher's demands persist, it can generate anxiety in the student. If the distance is minimal, an effect reducing motivation will also take place, because the student already knows most of the new material to learn and gets bored (Pintrich and De Groot, 1990).

Cyrs (1995) affirms that students should not so much be motivated, but that an environment which lets them motivate themselves should be created. With the emergence of the new socio-cognitive theories on motivation and performance, current studies centre their interest on the learning situation or environment. This makes much more sense than trying to provoke a change in students impinging directly on their personal aspects.

In this context, the objective of this study is to know if the communication through Internet that the students maintain with people from other places, whether national or international, is associated with their self-esteem, and to understand how the use of communications is perceived and felt by them. For this the following three general hypothesis were posed:

H1: The self-esteem of the group of students who communicated via e-mail (G1) is significantly different to that of the students who did not communicate via e-mail, and who have access to a computer (G2).

H2: The self-esteem of the group of students who communicated via e-mail (G1) is significantly different to that of the students who did not communicate via e-mail, and who do not have access to a computer (G3).

H2: The self-esteem of the group of students who did not communicate via e-mail, but who have a computer (G2) is significantly different to that of the students who did not communicate via e-mail, and who do not have access to a computer (G3).

## **2. Method**

### **2.1 Subjects**

The population were secondary school students at public establishments in regions VIII, IX and X in Chile. The sample consisted of 51 students at secondary level, 21 males and 30 females, who were divided into 3 groups, each one made up of 7 males and 10 females, 17 subjects in total. Group 1 (G1) corresponded to the students who communicated via e-mail and chat in the establishment for educational purposes. The selection criteria was the amount of e-mails sent and received (a minimum of 5 messages), and the frequency that chat was used (at least once a week). Group 2 (G2) corresponded to students who did not communicate via e-mail, and who have access to a computer in the establishment for educational work. Group 3 (G3) corresponded to students who did not communicate via e-mail and who do not have a computer in their establishment. In order to assure equivalence between the three groups, subjects were put together depending on the following variables: age, gender, their parents' educational level and school performance.

### **2.2 Design**

Quantitatively, a post-test transversal group difference design was used, which was one tailed.

### **2.3 Instruments**

Coopersmith's Self-esteem Inventory was used to gather quantitative data. This is an inventory with 58 items to be filled in by oneself, in which the subject reads a declaratory sentence and then decides if that sentence is "the same as me" or "different from me". The inventory relates to students' self-perception in four areas: general self-esteem, social self-esteem, home and parents, academic and an 8 item lie detection scale. This instrument was validated in Chile, and the reliability coefficient was  $r=0,87$ . A concurrent validity against the California personality test (also validated in Chile) obtaining a correlation of 0.72 between the total scores, which was a statistically significant result ( $p<0.01$ ) (Brinkmann, Segure, and Solar, 1989).

Two focus groups were used for the gathering of qualitative data, in which a small group of informants (from six to twelve people), guided by a facilitator, talked freely and spontaneously about subjects considered important for the study. Participants were selected from a target group in which the opinions and ideas were of interest to the researcher. The sessions were usually recorded and an observer took notes on the discussion (Willms and Johnson, 1993). Four semi-structured in-depth interviews took place, which consisted of a conversation guided by questionnaire. Its main characteristic was flexibility, as it allowed mixing the order of questions and adding others depending on the flow of the interaction (Willms and Johnson, 1993).

### **2.4 Procedure**

Once the sample and the groups that made up the sample were defined, each of the educational establishments was contacted through the teachers in charge of the *Enlaces* project in every establishment. Having agreed to participate in the study, the principals of the establishments were contacted and their authorisation obtained to evaluate the students.

On a first visit, with the help of the teacher in charge of the *Enlaces* project in the establishment, the students who had communicated via e-mail and chat, and who were present on the day of the visit, were selected. On that same visit, students who had no experience communicating via e-mail, but who had at least 6 months experience of using computers were randomly selected.

After selecting the subjects, they were given the Coopersmith's Self-esteem Inventory. Every student had the questionnaire where the questions appeared and the corresponding answer sheets. Afterwards, every questionnaire was graded and based on the students' answers, the data tables were made up. For the statistical analysis of data, a normality test was applied, a homogeneity of variance test and the one-way analysis of variance test (ANOVA Oneway), which lets one analyse if more than two groups differ significantly with respect to their means and variances (Hernández, Fernández y Baptista, 1991).

In order to obtain qualitative data, a model interview was produced. The establishments involved were visited a second time, in which two focus groups were created with two different groups of students. Later, four in-depth interviews were carried out with those students who had experience with Internet and who had participated in the focus groups. Two students in every group were interviewed. These interviews were recorded on audio tapes, transcribed and later codified independently by three researchers, using triangulation by method and by technique. This strategy is used to insure that the data obtained is not the product of only one technique, whereby reliability and validity is increased. It consists of using different techniques to gather data, in this case an in-depth interview, participating observance, focus group (Pituckmahaket, Yoddumnern-Attig, and Kanungsukkasem, 1989).

Finally, Coopersmith's Self-esteem Inventory was applied to the students selected from the establishments who had no computers and who did not have access to these by any other means, thus forming group 3.

### **3. Results**

#### **3.1 Quantitative Results**

The results from the application of the Coopersmith's Self-esteem Inventory were analysed through using a one-way analysis of variance. To do this test, first the Shapiro Wilk test was applied. This showed significance levels of .445 for G1, .342 for G2 and .201 for G3, which indicates that the population distribution of the dependent variable is normal. After that Levene's analysis of homogeneity of variance was applied. This showed a significance level of .197, which indicates that the variances of the three groups were homogeneous.

The ANOVA of a factor for the total scores gives a value of F: 5,894 ( $p < .0051$ ), which indicates that the three groups were significantly different (Table 1).

Table 1:  
Analysis of the one-way variance for the total scores

|                | Sum of Squares | Degrees of Freedom | Mean Square | F     | Sig.  |
|----------------|----------------|--------------------|-------------|-------|-------|
| Between Groups | 1326.000       | 2                  | 633.000     | 5.894 | .0051 |
| Within Groups  | 5398.588       | 48                 | 112.471     |       |       |
| Total          | 6724.588       | 50                 |             |       |       |

The multiple comparison of groups using the Tukey HSD test with an alpha of 0,05 indicates that G1 differs significantly from G2 and G3, without there being significant differences between G1 and G3 (Table 2).

Table 2  
Multiple comparison for total scores

| Comparisons between Groups | Differences between means | Significance |
|----------------------------|---------------------------|--------------|
| Group 1 - Group 2          | 12                        | .029         |
| Group 2 - Group 3          | 9                         | .327         |
| Group 1 - Group 3          | 3                         | .015         |

In the variance analysis of G (General Self-Esteem), a value F: 7.085 ( $p < .002$ ) was obtained, there is a significant difference between groups with respect to general self-esteem (Table 3)

Table 3  
One-way Variance Analysis of G (general self-esteem)

|                | Sum of Squares | Degrees of Freedom | Mean Square | F     | Sig. |
|----------------|----------------|--------------------|-------------|-------|------|
| Between Groups | 410.8235       | 2                  | 205.411     | 7.085 | .002 |
| Within Groups  | 1391.5294      | 48                 | 28.990      |       |      |
| Total          | 1802.3529      | 50                 |             |       |      |

The multiple comparison of G, using the Tukey HSD test, indicates that G1 differs significantly from G3 and G2. These last two do not differ significantly between themselves (Table 4).

Table 4  
Multiple Comparisons of G (General Self-Esteem)

| Comparisons between Groups | Differences between means | Significance |
|----------------------------|---------------------------|--------------|
| Group 1 - Group 2          | 12                        | .014         |
| Group 2 - Group 3          | 9                         | .371         |
| Group 1 - Group 3          | 3                         | .005         |

On carrying out ANOVA to compare the differences between the groups for S (social self-esteem), a value of F: 2.674 ( $p < .079$ ) was obtained, and for E (school self-esteem) a value of F: 2.501 ( $p < .093$ ), and thus the groups do not differ significantly between themselves. In the analysis of H (family self-esteem), there is no homogeneity of the variances, therefore the non-parametric Kruskal-Wallis test was applied, obtaining a value Chi: 2.682 ( $p < .262$ ), thus there are no differences between them with respect to family self-esteem.

On including the variables gender, age, course, parents' literacy and average grades in the statistical analysis, no significant differences were found, and therefore these variables had no repercussions on the group differences, so they were not considered in the analysis.

### 3.2 Qualitative Results

On analysing the in-depth interviews and the focus groups of the students who had used Internet and e-mail. two major categories of significance were obtained, these are: the experience of learning to use computers and using Internet as a work resource.

As for learning to use computers, the emotions experienced by students arising from their first encounter with a computer, were codified as fear, insecurity and curiosity.

*"...I felt afraid of getting it wrong, not knowing how to do anything"  
"...fear of messing it up, but I still wanted to know how it was..."*

Afterwards, the feelings experienced by the students, once they learned how to use a computer, were those of pride, personal realisation, happiness and confidence:

*"I am important because I know more"  
"I feel I am able to do it, and on seeing this, I feel good, seeing myself capable makes me feel that I am filling up with knowledge"  
"one feels more capable"  
"... your self-esteem goes up, because if there is a group that is involved with computing and you know nothing, you will look like a little chicken out of place... but not now, you can speak, then it helps you ... as if you say that there is no one more important than yourself"*

Once they learned to use the computer, the ideas associated are those of personal capacity, usefulness, interest in knowing and improving their work:

*"I feel more dependent, because I know that with the computer you can do it better..."  
"as if work could be done more easily"  
"I am more able to do other things..."*

The experience of using computers makes students perceive the reception of a range of positive feedback coming from other significant persons. From their parents, students show feelings of happiness and pride:

*“they feel happy and proud of us”.*

When students compare themselves with their fellow students, they see a benefit and feel proud to have this knowledge, they reported:

*“I am proud someone asks me something and I know it”*

*“when they don't know, they look for those of us who know, like me, because I know more than they do”*

*“I know more than others and I can show it”.*

Within this perception, there is also the idea that they have a certain advantage over students who do not have access to computers:

*“It is as if those who do not have computers are being left behind, in the end everything is heading towards total computerisation”*

*“When we work, we are going to have to use computers... and the others, they will not know, then we will be one step ahead”.*

As for students' motivation for using computers, in the beginning they felt very motivated to attend computer courses to practise what they had learnt and to continue learning. Later, the motivation decreased, because they had the feeling that they were only doing word processing activities, and that, as a resource, they were not taking full advantage of it, and it was associated with negative emotions such as boredom.

*“...almost always you start getting bored ... you only use the computer for class assignments ... they only show you programs to write assignments, no more, and they don't show you programs or activities that can be done, or other things the computer can be useful for...”*

*“we are always doing the same, routine bores me”.*

A second motivating factor is the concentration with which students work in front of the computer:

*“...the computer helps you to concentrate more ...you have to keep track of what you are doing, on the other hand in the classroom if there is something you did not understand, you just don't understand it, or you end up making noise so that you get thrown out of the class”.*

On analysing ideas and emotions with respect to the use of Internet, six relevant topics were observed. First of all, it is related to the concept students have of the Internet. For both groups, it is a source of information and communication.

*“communication network through which you can, for example find out things, navigate...look for addresses, receive messages”*

*“it is a way to communicate, a source of information and communication”*

A second topic is related to the experience of using the Internet, where the main motivating element of the Internet is the possibility of finding any information and the possibility of communicating with any person.

*“... you can see whatever you like, there are no rules on the Internet ... the freedom to look for whatever you want and to be able to communicate with whoever you want to ...”*

*“if you want to find information using the Internet, it is because you are interested, and just the fact of being able to get on-line and that in itself is not so easy, it is more motivating to continue searching, to see what you get in the end, it is enjoyable”.*

As a third topic, the benefits that they get from the freedom of access to the Internet, the chance to be more mature and to form their own opinions were mentioned.

*“... people acquire their own opinions by looking around, freely, because with responsibility, you choose for yourself”.*

The fourth topic refers to the possibilities that they as students perceive on the Internet, amongst them opportunities for learning and personal development.

*“...I acquire more knowledge and get to know more people”  
“...it is necessary to use computers for everything nowadays, because a day may come where instead of school bag and exercise book, there will be a computer for each student in class”.*

The fifth topic is the impact on the personal sphere of experience with the Internet. It was stated that knowing people from different cultures enabled them to know more about their way of life, to learn about the cultures of other countries, having more topics of conversation, it has opened their minds to knowing new things.

*“it helps to open more perspectives, I am thinking now about studying and leaving here, living somewhere else”  
“it changes your view of the world... now I know how the system works in other countries ... it helps you to learn about culture in general, because you are not ignorant”.*

Still on this topic, the experience of knowing others enables the development of feelings of appreciation and acceptance of others and of oneself.

*“...we are going to have a normal opinion of each and every person, meaning that you are not going to say that the Vietnamese are such and such a way because they eat dogs, because they might think the same of us, because we eat chicken, in the end everything will be accepted”.  
“...interchanging information with other places, information on the city, inhabitants, tourist places, culture... it is a collaborative project ...”.  
“to be able to tell someone about our city, the most important thing was to know the culture, its features”  
“I learnt things about my city, there were many things I did not know... it was useful to expand my culture”*

As for e-mail use, the sixth topic, this tool is regarded as a way of sending and receiving letters through the computer, a quick and easy way to communicate. Where the emotions and feelings associated with using mail are those of happiness, fulfilment and enjoyment.

*“... when I received my first answer I was delighted, as if I was not really expecting to hear back from them...”.*

The ideas associated with the use of e-mail are those of personal capacity, security and importance.

*“...last year I spoke with a bloke from the United States, I started writing to him in Spanish and he asked me if I could please write to him in English... so they are*

*ignorant when it comes to the Spanish language, and I could hold a short conversation, but in English, so it is as if I am more able than he is...".*

*"it is great to have friends in other parts of the world... one can get to know more things..."*

*"... not everybody knows people from other parts of the world but I do..."*

#### **4. Discussion**

The main purpose of this research is, on the one hand, to know and understand the relation established between the use of the Internet and the students' self-esteem and, on the other hand, the use of quantitative and qualitative methodologies. Therefore, the emphasis of the following analysis is set on the exploration and understanding of the relation between these phenomena beyond any type of extrapolation.

In the building of a person's self-esteem a series of factors converge: emotions, cognitions, perceptions and beliefs, relationship with the environment, experience, personal history, significant others. At the same time, a subject's level of self-esteem strongly conditions how one acts within their environment and one's perception of oneself. In the confluence of these events, virtuous or vicious circles can be generated: a higher level of self-esteem positively predisposes one when facing up to one's reality, and vice-versa. As Bandura (1987) proposes, a person anticipates the result of his behaviour from beliefs and evaluations he makes of his capabilities. Students who have used the Internet in their educational tasks, show a different level of general self-esteem (greater on average) than those students who have not used this resource. However, this difference is not clearly attributable to the isolated effect of Internet communications, since in reality the use of information systems (Web) and communication (e-mail and chat), are combined in the personal experience of the subjects studied. The way students talk about it, the use of the Internet is perceived as a resource that contributes in a positive way to the development of ideas and personal capacity, pride and security. It is clear that cognitions and emotions in people's psychological lives operate together. However, the use of Internet information tools (Web) is more associated with positive ideas about oneself, and communication tools could be closer to the affective dimension of a student's school work.

The use of these resources at school has significant repercussions on the combination of factors that contribute to the increase or decrease of the students' self-esteem. On this point, at least two important topics stand out. One is the effect at the level of modification of the students' cognitions and emotions about themselves, and the other is the social and academic dynamics generated around those students who have had access to information and communication resources. The effect of the use of the computer in itself shows a positive effect on the social environment of the students. It contributes with the same logic as that of the Internet to the building of students' self-esteem. For this very reason, the analysis of the results that follows, will refer in more detail to those results which relate more clearly to the use of information and communication systems, so long as it is possible to know, sharing the students' point of view, when a monotonous use of the computer transforms this tool into a "boring" resource.

It is shown that the use of Internet would contribute to the development of feelings of personal capacity and success, and that this information, as García and Musitu (1993) propose, gets integrated into the image of personal capacity that the subjects already have about themselves. Since this information has been positively valued by students, they develop a more positive opinion about themselves, reinforcing their self-esteem (García and Doménech, 1999). Due to the characteristics of the Internet, mistakes are not very likely to occur, and more so with the kind of use that students make (research or looking for information rather general and simple), in the majority of occasions it helps them to obtain positive results. From the point of view of the students, it is probable that with a low level of failure, adding to the perception of control over a complex resource, they attribute their success to internal, stable and controllable factors. This statement can be inferred from students' opinions, with respect to their decisions on what to see or where to go in the Internet (control attribution), the perception of development of their personal capability to operate on the Internet and to acquire more knowledge (attribution to internal factors), and the fact that, once learnt it is not forgotten (stability attribution). This dynamic is very consistent with that proposed by García and Doménech (1999); Machargo, (1999) and Garbarino and Stott, (1993). This would enable one to understand a reason why students who have used Internet show a higher level of self-esteem.

It is probably in the emotional domain where a larger number of effects derived from the use of the Internet converge. In accordance with students' answers, no negative feelings associated with the use of information and communication services were observed. On the contrary, they stated that they felt happy, fulfilled, entertained and "moved", which is very relevant to their school life, since positive emotions produce positive effects which favourably influence learning. When one enjoys carrying out a task, an intrinsic positive motivation is induced (Pekrun, 1992).

It can be clearly observed that the use of computers and the experience of communication generate positive emotions. However, when using the computer for learning tasks with an ordinary design, such as using a word processor, this generates in the students at least one negative emotion (boredom). This situation leads to a reduction in students' intrinsic motivation and a tendency to escape cognitively from the task (García and Doménech, 1999). This feeling is not observed in communication, since the design of this learning activity is attractive and dynamic (Ames, 1992). The presence of this negative emotion can be explained by what was proposed by Pintrich and De Groot (1990) as for the design of learning activities, in a monotonous use of a resource, the distance between what learners already know and the new content to be taught by the teacher is minimum. On the contrary, in communication experiences amongst students from different cultures or places, the distance between what students know and what they are to learn, is adequate and dynamic. Internet offers a wide space for students to find what they are looking for or to communicate with whoever they wish, depending on their motivations and interests.

The chance to interact is the main motivating factor for students. As it was reported: *"if you do some research on the Internet it is because you are interested in it, then only the fact that you can get on the net and it is not all that easy, it is as if that motivated you more to keep on investigating, to see what comes out, it is entertaining"*. The Internet is a motivating learning resource insofar as the learner enjoys carrying out the task or working

on new contents (in contrast to mechanical learning or just memorising material) because he understands what he is taught, items make sense and he takes an active role in his learning activity or communication. Thus a high level of intrinsic motivation is generated, and this is reinforced by a variety of positive emotions (Coll and Solé, 1989).

The relationship between learning goals and Internet is extremely dynamic. The learning goals set by students give rise to them looking for different ways to carry out their academic tasks and different motivational patterns in them. The goals go from one pole of extrinsic orientation (to get good grades, to be accepted by a group, to be congratulated), to an intrinsic one (desire to know, curiosity, anxiety to learn, preference for a challenge) (González, 1996, García and Doménech, 1999). It is observed that students who use computers and who communicate through Internet tend to set more intrinsic goals. When learners talk about their learning process, from first using the computer until using Internet, they say that they felt curiosity, their interest in learning more grew, and they noticed that Internet gave them the chance to acquire more knowledge and to study in more depth other subjects. Using e-mail or navigating through Internet constitutes a challenge, an important intrinsic motivating factor for learning. The positive feedback students receive from parents, teachers or fellow students, could also favour the development of extrinsic goals in students, insofar as they use the resources in order to obtain acknowledgement from the people around them. However, given the possibilities this resource offers, intrinsic goals are mainly observed. The reason being that students report dynamism and modification of goals, insofar as these goals increase in complexity and diversity, when they wish to study a subject in depth or to communicate with other people.

The experience of the subjects studied in communicating with others only reinforces what Zea and Vargas (1994) and Campos (1995) stated: that communication with others enabled them to know aspects of their own country, it is a way to open up to the world (Garbarino and Stott, 1993); the fact that acknowledgement and being valued by others helps the creation of a space where it is possible to share with other cultures, stimulating thus the formation of friendships with others (Sook-Hi, 1997). Opening up to the world is an experience which is positively valued by learners. It has enabled them to increase their knowledge about other countries, to acquire more topics of conversation, and to broaden their minds to know, value and accept others, to place themselves in a global context where they envisage similarities and differences, and where they value both what is theirs and what is others'.

Finally, it can be noted that communication through Internet is an experience valued positively by students. This experience manifests itself in at least four areas. 1) It reinforces the self-perception of capability in the students, for the achievement of learning how to use the technology. That in itself is socially valued. 2) The experience of communication generates positive emotions in students, reinforcing their self-esteem and their intrinsic motivation. 3) The chance to communicate enables students to broaden their view of the world and 4) a benefit or advantage is envisaged in relation to those students who have no access to Internet.

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