Proceedings

VOLUME II

Workshop on Affective Brain-Computer Interfaces

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IEEE International Workshop on Social Signal Processing

held in conjunction with:

International Conference on
ACII 2009: Affective Computing & Intelligent Interaction
September 2009, Amsterdam, The Netherlands

IEEE Catalog Number: CFP0964H-USB
ISBN: 978-1-4244-4799-2
Library of Congress: 2009905375

Social Signal Processing Workshop: Foreword

Social interactions are among the hottest topics in the computing community. Less than a decade after the first fragmented and isolated efforts, the number of researchers active in automatic analysis, understanding and synthesis of social behavior is constantly growing and a new, vibrant research community is forming at the border between human sciences (sociology, psychology, anthropology, etc.) and technology (computer vision, speech analysis and synthesis, etc.).

Social Signal Processing is the new, emerging domain at the edge of this pioneering effort. As it establishes and formalizes for the first time a viable interface between human sciences and technology, SSP offers an ideal framework for the development of truly multidisciplinary approaches aimed at making machines socially intelligent.

The IEEE International Workshop on Social Signal Processing aims at gathering for the first time researchers approaching the problem of social intelligence in machines from all possible perspectives, namely investigation of laws and principles governing social interactions, automatic understanding of social phenomena in human-human and human-machine interactions, and synthesis of social behavior via different forms of embodiment. The goal is not only to foster cross-pollination between the above fields, but also to establish an extensive SSP community sharing common research goals and methodologies.

We take this opportunity to thank all the people that have helped to make this Workshop possible, the General Chairs of ACII 2009, the key-not speakers, the members of the Program Committee, and the reviewers. Furthermore, we acknowledge the European Network of Excellence SSPNet (www.sspnet.eu) that has supported the key-note speakers as well as the infrastructure for video recording and diffusion of all presentations.

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Social Signals and the action – cognition loop. The case of overhelp and evaluation

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Abstract

The paper explores the action – cognition loop by investigating the relation between overhelp and evaluation. It presents a study on the helping and overhelping behaviors of teachers with students of their own vs. of a stigmatized culture, and analyses them in terms of a taxonomy of helping behavior, and adopting an annotation scheme to assess the multimodal behavior of teachers and pupils. Results show that overhelping teachers induce more negative evaluations, more often concerning general capacities, and frequently expressed indirectly. This seems to show that the overhelp offered blocks a child's striving for autonomy since it generates a negative evaluation, in particular the belief of an inability of the receiver.

1. Introduction

In Social Signals research, an intriguing subject is the action – cognition loop. In humans social action is mediated by cognition [2]. We decide to do things or to relate to persons on the basis of our conscious or unconscious beliefs; even our emotions, that are a crucial determinant of behaviour, are triggered – either in a reactive or in a reflective way – by beliefs. But at the same time our actions and relations backfire onto our beliefs. A particular case of this action – cognition loop is the relation between help and evaluation. Help is a social action aimed at fulfilling the goals of another person, while evaluation is a set of beliefs concerning how much things, events or persons may favour or thwart our goals. In this work we show how actions and beliefs, help and evaluation may determine each other in a teacher – student relation, and how this link can be assessed by studying their social signals.

2. Evaluation

Evaluating is a cognitive activity of utmost importance in both individual action and social interaction. In every action of our life we form evaluations of objects, persons, events; and at the same time we continuously evaluate other people.

In the goal-and-belief model of mind and social action that we adopt [1, 2, 9], an evaluation is defined as a belief about whether and how much some object, event, person have or provide the power to achieve some goals. The evaluation is positive when they allow and negative when they prevent from achieving a goal, and we evaluate with respect to any kind of goal, utilitarian, ethical, aesthetical; we judge everything as good or bad, ugly or beautiful, useful or unuseful. Evaluating is necessary to action: we evaluate at every moment of our action planning: to decide which goals to pursue, to assess the right actions to do and the tools to use, to check if our goals are achieved.

Yet, beside things or facts we also evaluate persons: we make up an "image" of the persons we meet, that is, a set of evaluative (and non-evaluative) beliefs about them – that person is handsome or ugly, selfish or altruistic, just or unjust, smart or silly; and this determines the social relation we want to have with them. Further, there are two kinds of negative evaluations: one for inadequacy, if someone lacks the power necessary to achieve some goal, and one of noxiousness, if one is actually endowed with power, but a negative power that risks of thwarting someone's goals. A knife is a bad knife if it does not cut well; but it is dangerous if it is too sharp. At school, a teacher may form an evaluation of inadequacy about a boy who is not clever, and an evaluation of noxiousness about one who bothers other children. Moreover, when someone does not succeed in performing some task, one may evaluate negatively either the single performance or – through a process of generalization – the person's general traits or capacities; and the latter is a heavier judgment than the former.

We do not only evaluate others, but also ourselves, thus making up our self-image, a set of evaluative (and non-evaluative) beliefs about ourselves. Our self-image is at least in part determined by our image – how others judge us [8]. But from self image the degree of autonomy of a person depends: if one has a positive evaluation of his own capacities and efficacy, he will pursue his goals in an autonomous and self-confident way. At school, for example, negative evaluations may have a serious impact on a pupil's self image, sense of efficacy, and learning: they tend to dis-able him, to make him less active, and possibly induce him to refrain from action.

3. Help and overhelp

According to the model above, help is a case of goal adoption [2]. An Agent A adopts Agent B's goal when

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A puts its resources to the service of B's goal, taking it as one's own, and doing actions in order to it. Several types of adoption may be distinguished according to whether they are instrumental to a further goal of the adopter, like in exchange or cooperation, or whether the adopter fulfils the other's goals in a completely disinterested way, like in help and altruism.

Within research on altruistic behaviour, an intriguing issue is the role of helping in social relationships. Help conveys a prosocial intention of the helper, but may also have a negative effect [7], both because the helped person may feel in debt with the helper, and because being helped in itself may perpetuate the dependence of the helped one and possibly the asymmetry of the relationship. This is even clearer with overhelp, that is, when the helper offers his action even if the other could do by himself.

Benevolent overhelp has not been studied in depth so far [7], except for Gilbert and Silvera [6]., who focus on malevolent intentions of the helper to damage the helpee's image in working contexts; furthermore in the few studies on overhelp there's no particular consideration of the helped person . In previous works D'Errico & Leone [3, 4] studied overhelping behaviour in mothers of normal children and of children with a chronic disease, and in teachers with pupils of their own vs. another, stygmatized, culture [5]. In both cases it was found that overhelped children tend to refrain from action, thus failing to achieve autonomy. The reason for this may be that the negative self-evaluation stemming from being overhelped may result in a blow to the image of the helped person, and this in turn may affect her self-image by inducing a lowered aspiration level and a general tendency to de-activation. Further, if this occurs during the learning process, since learning and autonomy are typically made possible by active experience, no activation leads to less learning, more dependence, and less autonomy.

Thus, what evaluations are conveyed, and how, during the learning process, is relevant to predict possible outcomes in the achievement of autonomy.

4. Conveying evaluation

Evaluation and its communication is crucial in social life, and studying the ways in which evaluations are conveyed is a central topic in research on Social Signals.

Evaluations can be communicated by the evaluator, both to the person evaluated and to other persons, either in a direct or an indirect way. Cases of direct evaluation are, for example, praise, criticism or insult, which typically contain an evaluative belief within their very meaning, and typically may affect a person's image. But people care other people's evaluation to such an extent that they may be sensitive to it whatever the channel and the level of explicitness through which they perceive it.

A person may come to believe she is evaluated in some way by someone else in the following ways:

1. direct communication of evaluation, expressed either by verbal or nonverbal communicative signals, e.g. praise, blame, criticism, insult, whether displayed by words, sentences, gestures, grimaces...
2. indirect communication of evaluation. For example, if I tell you this orange is sour, and it is an orange you bought, I may be implying a criticism to your shopping skills
3. bare presupposition of someone's action. If I help you to complete a very easy puzzle, you may infer I think you are not able to do it by yourself.

An important distinction to keep in mind is one between communicated and inferred information. We can define communication [11] as a process in which an Agent S produces a signal in order to a conscious, unconscious or biological goal of having another Agent A come to believe some belief B. On the other hand, inference is a process through which an Agent A, on the basis of some beliefs obtained through perception and/or retrieved from long term memory, and through application of some rules of reasoning, can create a new belief. So it is important to distinguish information that people acquire through communication from one they extract by themselves from the world and from other people's non-communicative behaviour. If I see a person opening his umbrella, I can infer he believes it is raining, even though he did not perform that action *in order to* let me know it's raining. Nonetheless, I can treat that belief just as I treat other information acquired through communication: I can believe it or not, I can myself behave while taking it or not taking it into account – for instance I can decide to open my umbrella too... Other people's assumptions can be understood, used, taken into account irrespective of whether they want to communicate them to us or not, and even whether they themselves are aware or not of their own assumptions.

When a person is helping another, the assumption of an inability of the helped person may "leak" from the helper's behaviour. This assumption may be either indirectly communicated by indirect speech acts (*have you ever made a puzzle?*), or by the direct meaning of nonverbal behaviours (*no, this doesn't go there*), or simply implied by non-communicative actions ("the teacher places the pieces of the puzzle that the pupil could place herself"). It is important to specify that the helper may be in total good faith: she may not be aware at all that a negative evaluation is inadvertently conveyed by her behaviour. Nonetheless, the leaking information may have its effect on the other's image and self-image.

5. The action – cognition loop: overhelp and evaluation

Our hypothesis about the action – cognition loop in helping behaviour is that there is a cognitive mediation between the helper's and the helped person's

behaviour. More specifically, we claim that overhelp may induce an assumption of inability in the helped person and that such assumption may induce less autonomous behaviour and hence, again, a need for help. This may be an undesirable effect, at least in those cases and cultures where individual autonomy is seen as important. In this work we test the first part of the hypothesis – that overhelp induces negative evaluation, by focusing on the behaviours of teachers and pupils in dyadic interactions. In subsequent works, we will test the second part of the hypothesis by showing how pupils tend to act less just in correspondence with teachers' overhelp.

6. An observational study on teachers' help

To investigate the relation between overhelp and evaluation, we based our analysis on a previous study which explored the helping interaction between teachers and their pupils of their own culture or of another, stygmatized, culture [3].

Our study explored whether helping and overhelping behaviour conveys evaluation, and which type it, whether (1) positive or negative evaluation; (2) evaluation on performance or capacity (3) direct or indirect evaluation.

D'Errico et al. [5] carried on a study to analyse the interactions of Italian teachers with their Italian and Rumanian pupils. 21 teacher-pupil dyads of an Italian Primary school (9 with a Rumanian and 12 with an Italian child, all children being between 6 and 8 years old, balanced for gender) were videotaped during a game simulation, designed to possibly imply some crucial helping behaviours of the teacher, but where the teacher could choose either to help the pupil or not. The Scenario of the game was the Primitive village of the Flintstones family: the pupil played the role of Bam Bam or Pebbles (the Flintstones' little boy and little girl), and the teacher the role of Wilma, the guide who knows all the secrets of the village. After introducing the scenario, the master of the game told the plot and explained that the village was threatened by a magic spell that could be broken by a magic formula. To gain the table with the magic formula the child had to solve a riddle and then, thanks to the solution, could complete the formula by solving a puzzle containing a simple sentence. Both while solving the riddle and completing the puzzle Wilma (the teacher) could choose to help (e.g. simply provide some hints), to overhelp (e.g. tell how to make the complete picture) or not to help at all. Finally, the pupil repeated the magic formula aloud and the master declared the end of the mission because the island was safe.

D'Errico et al. [5] measured how much teachers help Rumanian vs. Italian pupils. In general, data showed that they tend to overhelp, that is, to intrude into the child's autonomous problem solving, more with Rumanian pupils than with Italian ones. Yet, there are large differences between teachers in the amount of overhelp given, and the study distinguished "high intrusive" versus "low intrusive" teachers, depending on the level of overhelp they provided.

In this work we are concerned more on a qualitative than on a quantitative analysis of the teachers' behaviour. Since our hypothesis is that overhelp indirectly conveys a negative evaluation of the helped pupil, we need to assess cases of overhelp and see if evaluative beliefs are contained in the manner it is provided,. So we do not extensively analyse all the teachers of the study, but only two extreme representatives of them: a "high intrusive" and "low intrusive" teacher.

To test our hypothesis that overhelp entails a risk of transmitting a negative evaluation, we need to

- describe and analyse the behaviours of teachers and pupils
- detect which of them imply a goal to help
- quantify the amount of help given, and
- assess whether the teacher's behaviour implies some kind of evaluation, and which one.

To measure the type and amount of help given is a relevant task for research on Social Signals. In fact, since a large part of Social Signals are those that convey information about social relationships, and helping behaviour is a determinant of various social relationships, it is important to have clear in how many ways people can help others. To do so, we built a taxonomy of a teacher's helping behaviours (Sect. 7). Further, to understand which kind of help is offered in a given interaction, we built an annotation scheme for the analysis of the teacher's behaviour (Sect. 8). A similar scheme will be used in subsequent works to assess the pupil's behaviour).

7. A taxonomy of helping behaviours

According to a view of learning as an active process, teaching can be conceived of as a series of behaviours aimed at providing a person with permanent capacities that make her autonomous, that is, potentially able to solve her own problems, to achieve her goals, by herself. This means that a teacher, when helping a pupil to complete some task, provides adequate help if she takes advantage of task execution to teach him general principles he could eventually transfer to future tasks, while if she does the pupil's job herself, or if she provides help that is not necessary because he could achieve the solution himself, she is overhelping him. More generally, a teacher is overhelping when she definitely tells the pupil what to do, while she is adequately helping when she puts the conditions for the pupil to understand what to do. From this point of view, a teacher's behaviours can be classified as to the extent to which they help the student. Of course, from help to overhelp there is a continuum, but it is possible, in our view, to single out extreme cases.

Table 1 (see below) shows various possible types of helping and overhelping behaviours. Both help and overhelp can be performed through communication, non-communicative action, or finally even by non-action, or better, "deliberate non-action": cases in which a teacher *could* have done something, but apparently *decided not to do* what she could have done. Within all three cases we can distinguish technical, cognitive and affective help or overhelp. The former distinction – communication, action, non-action – refers to the teacher's behaviour, while the latter refers to the processes, in the pupil's mind, to which the teacher's action or non-action is aimed: those which, if favoured by the teacher's intervention, should have an impact over task performance.

Technical help/overhelp is any action or deliberate non-action that directly allows or induces the pupil to perform some moves; cognitive help/overhelp is what provides information or cognitive strategies useful for task completion; affective help/overhelp is what induces affective states that may have an impact over task performance.

Starting from COMMUNICATIVE ACTIONS, typical cases of **technical help** are the communicative actions of providing information, hints, suggestions, but also criticism. Criticising may be seen as a form of adequate help to the extent to which, at least indirectly, it provides positive information as to how to do something. On the other hand, orders, directions, prohibitions can be seen as **technical overhelp**. In fact, we count as overhelp those cases in which the helper is intruding into the helped person's free choice and autonomy. If I tell you: "*there is a nice piece here*", I give you a chance to decide whether or not to place it into the puzzle, while if I tell you "*put this there*", I do not.

Cognitive help includes the communicative actions that do not provide specific solutions but rather reasoning strategies, like when the teacher puts general questions to make the pupil reason, or when she explains processes or proposes doubts while the pupil is making mistakes. Moreover, if a teacher does not only correct the pupil's move, but explains why it is incorrect, making him reflect over his mistaken process of thought, we have a good example of cognitive help. On the other hand, we consider **cognitive overhelp** cases of communication in which the teacher reveals specific moves or strategies the pupil could discover by himself. Again, one may provide both help and overhelp through "affective" communication, that is, communicative acts inducing or preventing emotions that could either favour or hinder the helped person's action. Cases of **helping affective communication** are the communicative actions of encouraging, inciting, praising, confirming, reassuring, sharing emotions with the pupil, and finally minimising his possible negative emotions; while a case of **overhelping affective communication** occurs, for example, if the teacher expresses compassion, or if she hurries the pupils, or simply induces stress in the pupils through leaking of her own anxiety.

Within NON-COMMUNICATIVE ACTIONS, some of the teacher's movements while assisting a pupil are not aimed at communicating but may be nonetheless helping or overhelping actions. Some can be seen as **technical helping behaviours** in that they fulfil the physical conditions for the pupil to do things well: e.g., the teacher preparing the game table, or placing a lamp in the right place to let him see better. But the teacher performs **technical overhelping** through non-communicative actions when she replaces the pupil by making the moves the pupil should do, say, by handing the right piece of the puzzle or placing it herself. She is overhelping also if she undoes his incorrect move, or corrects the pupil's move, by taking away a piece he put into the wrong slot, without telling him why it is wrong. A **cognitive helping non-communicative action** occurs when the teacher does something to put the condition for some cognitive process to take place in the pupil's mind. A typical case is the teacher turning the pieces of the puzzle in the right direction, so the pupil can better see how to place them. In this case, she is not communicating anything, but simply does something that in the pupil might trigger the insight for his problem solving. A **non-communicative cognitive overhelp** occurs if the teacher prevents the pupil from making a mistake, for instance by taking the piece away from his hand, or else if she undoes the pupil's error – say, by removing a piece placed by him – without an explanation. In an active view of learning that aims at developing the learner's autonomy, errors are an important step towards competence. So if the teacher, after the pupil has made a mistake, corrects his move and explains why it is an incorrect move, this is adequate help; but if she prevents him from making errors, or in any other way, she does not give him the chance of understanding why an error is an error, this is overhelp (or, possibly – bad help!). Finally, the teacher's action may fulfil the affective conditions of the pupil's work, by influencing the pupil's emotional state. Thus, it provides **affective help** if it makes the environment warm, motivating or relaxing. Strangely enough, though, it is difficult to find examples of the corresponding affective overhelp in the domain of non-communicative action. If for example the teacher inadvertently expresses her anxiety, thus inducing stress in the pupil, this is a case of communication, albeit unconscious [11]. On the other side, if anxiety simply leads the teacher to do the pupil's moves herself, we see this as technical overhelp, albeit caused by the teacher's emotional state. In such case, her emotion is not communicated but directly *acted out* by performing intruding and overhelping actions. Sometimes a right way to help is **non-action**. Should the teacher hurry the pupil, she might transmit anxiety and make him perform worse: the opposite of this communicative affective overhelp, and sometimes the

best kind of help, is waiting, i.e., refraining from action. Here it is clear how non-action implies a deliberate decision not to act: the teacher is moving her hand toward the puzzle, but then she refrains and puts it behind her hip. This a case of **affective help** through **non-action**. On the contrary, if the teacher stays there doing nothing while the pupil actually would need her help, this is *lack of help*, to be clearly distinguished from deliberate non action. So it is just when you detect movements of inhibition that you can speak of deliberate non-action. Another non intruding way to help are the teacher's **epistemic actions**, i.e., cognitive actions aimed at acquiring knowledge about how the task is being performed. A typical epistemic action is observing the pupil's behaviour attentively to check if he is performing well. Checking and controlling can be defined epistemic actions of acquiring knowledge about how some process is proceeding, in order to be able to re-direct it if something is going wrong. Thus epistemic action may be considered, though indirectly, a case of help, because it is a step before possibly deciding whether to help, and whether to provide technical, cognitive or affective help. Epistemic action may precede, and hence be indirectly, either technical or cognitive or affective help. For instance, if observing the pupil I see he is almost having the insight, but lacks a crucial information, I can provide it, thus giving cognitive help; if I see him discouraged, I can encourage him, providing affective help. On the other hand, the non-action of refraining from doing is most typically a case of affective help, being a way to leave the pupil reflect without hurry or anxiety.

8. An annotation scheme of the teacher's multimodal behaviour

The taxonomy presented so far may help to classify general categories of actions. But to analyze our videos we need to assess the single concrete behaviours performed by teachers and pupils, and classify them as belonging to one or the other of the categories above. So we devised an annotation scheme to analyze teachers' and pupils' multimodal behaviour. The focus of the scheme was to assess the type of social action of the teacher – her possible helping or overhelping behaviour, its possible evaluative import, and its effects over the pupil's reaction.

The annotation scheme is divided into 8 columns (see Tables 1 and 2).

- Column 1 contains the time in the video of the behaviour under analysis.
- In columns 2 and 3, respectively, we describe the teacher's verbal and nonverbal behaviour.
- In col. 4 we write the communicative or non-communicative goal of the behaviours in columns 2 and / or 3. For the verbal behaviour written in col. 2, its goal is by definition a communicative goal, while for the action written in col. 3 the goal to write in col. 4 may be either a communicative goal (for non-verbal communicative signals) or not (for those behaviours that are not intended to provide information).
- Further, since an action – either communicative or not – beside its direct goal may aim at one or more supergoals – other goals for which the direct goal is a means [11] – in col. 5 we write the possible supergoals of the actions in 2 or 3. For a non-communicative action a supergoal is some further effect the agent wants to bring about through goal of col.4: e.g, if a teacher turns the pieces of the puzzle on the right side, she may do so to check the place of the pieces better, and then to know herself where the pieces should go. For a communicative act, the supergoal is an inference the Sender wants the Addressee to draw from that communicative act: if the teacher points at the place in the puzzle where the piece belongs, her communicative supergoal is to suggest the pupil to put it there.
- In col. 6 we classify the goal of col. 4 (or the supergoal written in col 5., when there is one) in terms of the above taxonomy of the teacher's helping or overhelping behaviours (Table 1).
- In col. 7 we write – if there are some – the plausible inferences that one could easily draw from the teacher's actions (columns 2 and 3) and their goals (4 and 5), but that the teacher presumably did not have the goal to be drawn by the Interlocutor. We call them "unwanted inferences" since they are beliefs that may have caused the Agent's action, and since often from the effect we infer the cause, they can be inferred from the Agent's action. Typically, for instance, if the teacher overhelps the pupil by placing some pieces, you may think the teacher doubts s/he is not able to do it.
- In col. 8 we write whether some of the beliefs of columns 4,5 or 7 convey some kind of evaluation, and what kind.

Table 2 (see below) shows three fragments of our analysis. At line 1, time 7.09 (Col.1), the teacher places the two posts of the game in front of the child and orients them toward her (col. 3). Her direct goal, a communicative goal pursued through a nonverbal action, is for the child to pay attention and concentrate to start the game (col.4). This is (col. 6) a Communicative action (C) providing technical help.

Immediately after, at line 2, time 7.10, the teacher bends her head in a head canting posture (col. 3), a posture of welcome, of non-dominance, which means: "I put myself at your level" (4): a Communicative action providing the affective help of making the other feel welcome (6). But this is the typical posture of a mother with her child: a posture of welcome, but marking an asymmetrical relation. So it may have an unintended effect of letting the child infer "your level is low" (7): a negative evaluation (8) inadvertently conveyed by this action.

At line 3., time 7.11, the teacher asks the Rumanian child: *"Have you ever done a puzzle?"* (col. 2). The

direct goal of this question is to check whether the prerequisites are fulfilled for the child to do the game well (col. 4). The reason that may have motivated this check – then the supergoal of this communicative action – is to be certain that the child is not being evaluated (for instance by the experimenter) for a skill in which she has not been trained before (col. 5): then a Communicative Action providing technical help (6). But the presupposition of the question (if I ask you if you have ever done this, I take into account the hypothesis that you have never done this) possibly unmasks an unwanted inference: in your culture such game might not be used as an educational tool (7). This might sound as a possible negative evaluation not simply of the child, but of the whole culture the child comes from (8). Of course, as it can be seen, this kind of analysis leaves room, at least to some extent, to different interpretations. But this is typical of qualitative research, which on the other hand has the advantage of a qualitative and more in depth insight into human cognition and action.

Yet, one might finally decide among different interpretations by taking into account the effects of teachers' different behaviours on pupils. And in fact, as will be clear later, the pupil helped by the high intrusive teacher tended to refrain from action more frequently than the one helped by the low intrusive one.

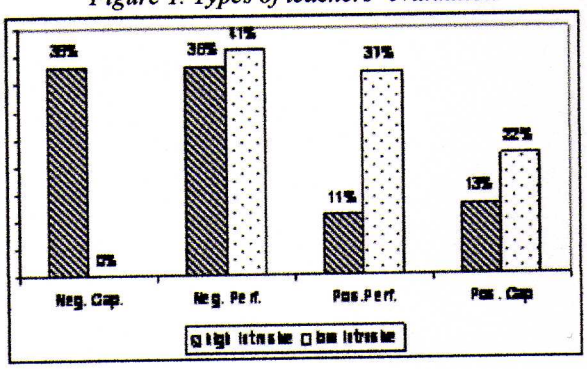
9. Results

As is clear from the taxonomy of helping behaviours presented above, there are many different ways of helping and overhelping. Our study aimed to explore the evaluative effects of help and overhelp in the classroom, trying to focus on the different types of teacher's evaluation that can be directly assumed or indirectly inferred even starting from a benevolent intention to help a pupil.

Since our hypothesis is that help may communicate a feedback about a person's self-image, in the analysis of the teachers' evaluation we distinguished not only positive vs. negative evaluations but also evaluation of performance vs. one of capacity..

A *chi-square* [χ^2 (1, 111)= 33,28; $p<0.000$] test revealed a significant difference between the low and the high intrusive teacher as to their types of evaluation: as shown in Figure 1., negative evaluation is prevailing in the high intrusive teacher compared to the low intrusive teacher (76% vs 41%); moreover the high intrusive teacher negatively evaluates the children's capacity to solve the problem in 38% of all evaluations. So when she overhelps she sends a negative feedback to the children about himself and his possibilities. The low intrusive teacher negatively evaluates only the child's performance, thus taking care of his self-image, while she provides a good percentage of positive evaluations of the child's capacity (22%).

Figure 1. Types of teachers' evaluation



We attributed progressive scores to the different types of evaluation (1 = negative evaluation of capacity, 2 = negative evaluation of performance, 3 = positive evaluation of performance, 4 = positive evaluation of capacity), to consider a general index of positive evaluation. A t-test shows that the low intrusive teacher generally evaluates significantly in a more positive manner [(t(109):3,951, $p<0.000$)] as compared to the high intrusive teacher (4.9 vs 8.5).

The results on the different types of evaluation have to be further refined by considering two different ways of communication, direct and indirect.

In computing negative evaluations we took into account the ease of the task to be completed by the children, so any kind of intervention that tended to replace e the child in completing the puzzle was labelled as negative evaluation. The high intrusive teacher's evaluations were mainly indirect (67%, vs. 33% direct ones), while the low intrusive teacher used a higher amount of direct evaluations [75% vs 25%; χ^2 (1, 110)= 19,65; $p<0.000$].

From these results we may conclude that:

- the high intrusive teacher tends to leak more negative evaluations, and more evaluations on the child's capacities than the low intrusive does;
- the low intrusive teacher gives more "constructive" evaluations (that is, more often positive, and less frequently about capacities);
- the low intrusive teacher tends to provide evaluations more in a direct than in an indirect way.

This pattern of evaluative behaviour by the low and high intrusive teachers show that overhelp indirectly lets the pupil infer negative evaluations about him/herself, mainly concerning his/her capacities. This could well account for the subsequent de-activation.found in the previous study. At the same time, that the negative evaluation is mainly indirect especially on the part of the high intrusive teacher might let us think that the more explicitly evaluations are expressed, the better.

Figure 2. Evaluation in high and low intrusive teachers

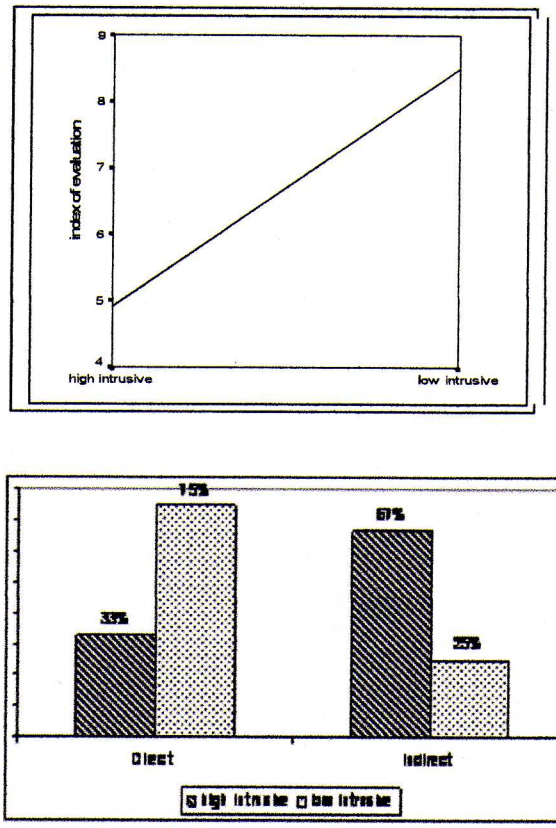


Figure 3. Direct vs. indirect evaluation

10. Conclusion

Evaluation is everywhere. Since evaluating things, events, persons, is of utmost importance in planning to achieve our goals, we tend to evaluate anything and anybody, and exploit any possible chance to evaluate. But evaluation is also food for our image, and to understand how others evaluate us we do not only rely on what they tell us; we try to infer this from their indirect messages, from their action, even from their non-action; and not only when others want to communicate how they value us, but even – possibly, more frequently – if they simply act with us as if they should value that way. We have presented a study on the helping and overhelping behaviour of teachers with pupils from their own and from other cultures, and we have seen how the teacher who overhelps more – the high intrusive one – often leaks a negative evaluation of the child: one that insists on the whole capacity more than on the single performance, and that more often is only indirectly – possibly inadvertently – expressed. This may invest the pupil with a heavier load of negative evaluation, thus possibly leading to refrain from action. In subsequent works we aim to assess the effects of this evaluation load in children's behaviour, to see how much the induction of dependence may be attributed to a blow to image and self-image, thus making it clearer the action – cognition loop.

Acknowledgements

This research is supported by the Seventh Framework Program, European Network of Excellence SSPNet (Social Signal Processing Network), Grant Agreement Number 231287

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Table 1.

Teacher's behaviour	Pupil's process	Help	Overhelp
COMMUNICATION	Technical	provides or reminds information, suggestion, hints, soft criticism	orders, directs, forbids
	Cognitive	puts general questions to make the pupil reason and find the solution, explains the process, how one should do, proposes doubts in case of likely mistakes; explains errors	reveals specific moves or strategies
	Affective	encourages, incites, reinforces, confirms, reassures, share and model emotions, minimizes child's negative emotions	expresses compassion, insists in hurrying up, shows anxiety
ACTION	Technical	fulfils technical conditions: prepares game table, put light in the right place	makes pupil's moves substitutes herself for the child
	Cognitive	fulfils cognitive conditions: performs actions to induce insight (turns pieces)	prevent pupil's errors (takes a piece away from the child's hand) or undo pupil's errors (takes pieces put by the child away) without explanation
	Affective	fulfils affective conditions: makes the environment motivating: relaxation, amusement, empowerment, gratification	
NON ACTION	Technical Cognitive Affective	refrain from action: waits, inhibits own action	

Table 2.

1. Time	**2. Speech**	**3. Action**	**4. Goal**	**5. Intended Supergoal**	**6. Type of Action**	**7. Unwanted Inference**	**8. Evaluation**
1 7.09		*Places both posts and orients them toward the child*	Pay attention here and concentrate, let's start the game		C, Technical Help		
2 7.10		*Head canting*	I put myself at your level. I welcome you as a mother with her child		C, Affective Help	Your level is low	Neg, Capacity
3. 7.11	*L'hai mai fatto un puzzle?* Have you ever done a puzzle?		I ask you to confirm if the prerequisites are fulfilled for you to do this game	I do not want you to be evaluated for something no one has taught you	C, Technical Help	May be in your culture these educational tools are not used	Neg, Capacity

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