

What People Introject in and Project to Information Systems

A psychodynamic view of User-System Interactions

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Abstract— User interactions with Information Systems (IS) certainly affect system implementation and usage activities. This study strives to find grounds for typical individual's psychic mechanisms of introjection and projection (and some other family mechanisms) in and to IS. It supplies understandings about the psychodynamics of reactions and interactions of systems' users.

Keywords: Information Systems, users' interaction, Introjection, Projection, Psychodynamic

I. INTRODUCTION

As a general presumption, people need to interact with information systems (IS). And, as another general assertion, it can be argued that all sorts of human *interaction* require some kind of exchanging psychic tensions, emotions and pressures over the course of time [1]. Following this assertion, this study is based on the premise that such *exchange* requires a general function of introjection/projection in various forms, as a necessary (but not sufficient) condition and consequently. In the next section, the study refers to some classic psychodynamic literature to show the dynamism of introjection/projection can be considered more general than to be merely as defense mechanisms.

So, regarding this formulation, the main purpose of this study tends to improve user-system interactions and system usage through providing a better understanding of the nature of such interactions from a human (humanistic) point of view. Such understanding is more significantly applicable throughout system implementation and adoption processes in which the system, its features and the subsequent shifts in power balance are novel and unexpected [3, 9]. As a result, it is expected that this discussion can facilitate any designated activities which are related to implementing, using and changing IS. Such a discussion is useful when we are trying to define sensitive (humanistic) IS concepts such as system usage and user resistance.

Hence, the objective is to find how people usually or according to different conditions, introject *and* project their mind contents in/to parts of the IS.

The suggested approach for this study is as follows. Firstly a background of the dynamism (i.e. introjection and projection) will be provided so that, as was earlier pointed, contemplates it in its general forms. This would be

accompanied with an elaboration of involved psychomechanisms.

Secondly, there will be an attempt to answer the next immediate question of what typical parts of an IS which can be targeted for such dynamism. In better words how can we divide a system into parts in that each one can be regarded as a target for projection and introjection processes.

In the subsequent section, the *relationships* between these two components, i.e. the dynamism of introjection and projection *and*, the recognized parts of IS will be asserted and discussed based on existing literature.

In section four, some evidences from previous case studies are presented to solidify these assertions (i.e. the proposed *relationships*).

A final discussion that is followed by suggested future works will be in the last section.

II. PSYCHODYNAMIC BACKGROUND OF INTROJECTION AND PROJECTION

From a specific point of view, introjection and projection are some types of ego defenses. These are in the narrowest form, and in a pathogenic view are signs of psychosis in different forms. However, in a more general form, they are some kind of equilibrating process which strives to maintain the psycho systems of individual. So, they are processes whereby the system can react to the environment toward keeping its balance. So, as defense mechanism (from a systemic view, *defense* against all disintegrating external and internal forces), they can have positive (healthy) and negative (pathogenic) functionalities.

The terms mechanism and process here are used interchangeably. Mechanism is actually refers to psychic mechanisms and particularly, defense mechanisms. However, we prefer the term process because view it as a process.

However, in more general perspective, introjection, projection and some other related significant mechanisms such as incorporation, internalization, idealization and identification (whether primary or secondary [1]) produce a mean of adaptability and learning for human beings from a psychic and psychodynamic perspective.

The discussion should be delimited in the way that firstly, now, we are only providing a psychodynamic view (as a relatively comprehensive view and, to some extent, excluding the views of conditional or cognitive psychology).

Secondly, these composite mechanisms totally play a major role in all interactions, but it is not in itself a comprehensive model (as a substitute for the whole or any subset of them, unless emphasizing on its importance). Then, this role would be under consideration in this study.

Then based on the quoted definitions and ideas, we consider them totally as an all-in-one process assisting people to interact with their external world (admittedly, in addition to their internal world). They use those, to find their position in the *world* (better to say, their personal world) via *Identification* and exchange their emotions, tensions and feelings with their social environment.

So, the subsequent question is, what are the specific forms of such interactions (if any) towards an information system and within its inclusive organizational setting. As a presumption, those specific forms are determinant in people activities for adaptation to the system. And if it is so, then such a discussion consequently can help to promote the understanding of such forms and finally the whole user-system interaction; e.g. as a direct outcome, improving the usage and alleviating the resistance concerning the system.

Some points about this composite process are mentioned in this section. People projection/introjection deeds about external objects, provide a possibility to not only interact with them and learn from them, but also mitigate perceived threats which those external objects potentially raise.

As is mentioned in [1], both of introjection and projection play a complementary role. This and other similarities, lead us to propose a conceptual assumption that all those can be regarded in a more general and comprehensive process pattern that act in an equilibrating systemic mechanism. This is because we may assume introjection and projection mechanisms, together, in a mutual way. So they can form a complete mechanism in which people can transfer their experiences and knowledge in the forms of emotions, feelings and tension *back and forth*. To generalize the process regarding other mechanisms, a reference is made to classic psychoanalytic texts [1], whereby firstly, incorporation, internalization and introjection are almost the same (mechanism), though (they are) in different levels of permissivity or abstraction. Secondly, the identification (cf. [7]), introjection and projection are also much related and can be considered different views of the same sophisticated process (for a comprehensive discussion, see the whole of part two of [1]).

After all, the point is about the major capability of human beings to internally adopt issues and then, use them as *their own* (identity – identification) in real/external situations, besides all other psychological (not necessarily rational and conscious) conditions, apparatus and implications. It may be regarded as our general definition of the “comprehensive *introjection-projection* process pattern”, only if the classic definitions of each mechanism separately (e.g. according to [1]) are kept in mind as well. Based on this hypothesizing, we can consider all of them as a composite set of processes formed around the *dichotomy* of introjection and projection. As such, it has helped people since early childhood to learn the required patterns from elders, and keep them in mind. So that, it is, at the same time, a set of several *signatures* of the

parents and parent substitutes, *also* a combinations of those (i.e. the signatures) acts as a unique *identifier* (identity) for the individual. This identifier has developed and adapted over the course of life (see [7] for another form of conceptualization). (Herein, the emphasis is on the adopted/acquired mechanisms rather than their later modifications respecting the related personal lives.) Anyhow, all these absorbed patterns (as incorporated, internalized and interjected) can be used (as usually and pervasively are so) to form different forms of external actions, through the means of externalization [1] and projection.

A general explanation for the effectiveness of such comprehensive process pattern for usual activities, e.g. using an information system, is that they facilitate exchanging tension and energy between people and their environment, thereby people get rid of undesired feelings, or better to say, moderating and balancing their tensions.

The other usefulness is to use them for the purpose of absorbing (incorporating, internalizing) the power of someone/something omnipotent to exchange the one’s state of anxiety, fear and threatened with him/her/it (for the sake of alleviating the degree of the one’s anxiety, of course).

The other aspect is about considering this pattern as a general learning process which functions through practicing adoption of something by introjecting it and (for reassuring), projecting it again to the same or another object.

In this way, the study suggests a general framework for exchanging emotion. As such, in this framework (i.e. contemplating the whole introjection-projection process as a general framework or protocol for emotional exchange), people exchange their emotions, including their perceptions about the desirability or undesirability of the environment, through conveying them (i.e. the emotions) from/to others by introjection and introjection processes.

III. TARGETING IS

To justify IS targeting for human projection/introjection mechanisms, it is required to show that which *parts* of IS can be targeted. However, initially, two more subjects should be discussed in this connection. Firstly, which IS’ properties are remarkable to generally introduce IS as a favorable target for human’s introjection projection mechanisms. Secondly, and as the core concept, how can we divide a system into parts to be targeted, or what is an appropriate dividing approach for the system whereby the result could be a normalized set of parts for being targeted by introjection and projection mechanisms.

For a discussion about the properties some points elsewhere has been provided [8]. Shortly, IS has decisive attributes to be perceived animatedly by individuals and groups. It can obviously control and correct people; possess some kind of knowledge and can interact with people (actually, by definition, it is designed to be intractable). IS usually appeared to be intelligent and even, as a human made machine, it is uniquely so in a social scale.

The other points we can enumerate here are, IS seem to be animatedly motivated and determined (for their goals) and peruse them even with enforcing pressure on their users

and show (sometimes and particularly in a social scale) some kind of obstinacy to them.

As was mentioned previously, the core concept is how can divide a system to pieces to find a normalized set of parts for studying introjection and projection processes. In this formulation, the *whole* system can also be considered as a part in the sense of being a *single* element which can be targeted for projection and introjection mechanisms.

It is appeared to be an unacceptable justification to posit that people merely introject and project from/to the system as a whole, not to its parts; and then there is no need to divide it into *targeted parts* at all. In fact, such mappings between the whole system as a monolithic entity and various psychic mechanisms of different individuals (i.e. the system users) do not seem to be very effective, due to the fact that in this configuration, finding right patterns of interactions would be difficult. It should be reminded that, as an implicit objective for this study, finding true ways of emotional exchange through the interactions of the system usage is a starting point.

First possible attempt is about identifying targeted parts as they are designed and implemented in terms of the system's functionalities and services. However, such resulting parts are not very proper counterparts for relating to users' feelings and emotions, or even, benefits and interests. Moreover, it can be argued that, interaction patterns and usage scenarios (use cases [12]) are not the answer as well (though they are somehow, better than system's services and functionalities), because, people intuitively regard them as outer effects of some intelligence/intention resided in the background.

Referring to classic psychoanalysis literature, it is an acceptable assertion that people, according to their personal conditions as well as the current situation of organizational settings, are attracted to different parts of the work which are *cathected* with psycho-energy [2] from *their* perspective (herein, we use this term as a metaphor only). Then the question, in rephrasing, is how the tensions and emotions can be *cathected* to the system parts, respecting organizational, cultural, personal and systemic conditions. This can be useful, not only for all objectives of this study, but also for evaluating the balance of psychoanalysis of organizations in a very wide range of issues [10, 11].

As a position, we approach to people's mind processes and the mapped parts of the system that can reflect those. It can include stimulations such as system's *controls*. On this basis, people introject/project in compliance with those things which are related to their super-ego. The point is these parts (e.g. system's controls) do not necessarily follow the system's services and their boundaries (as are designed).

As a result, the system can be divided into *control sections*, preferably capable of punishing and rewarding the users (as they perceived so). These (i.e. the control sections) resemble the parental agents and thereafter, the users' superego; simply because they are more potential to be imitated and hence, idealized, introject, project and *identified* (referring to the identification process assumed in [7] and general definitions in [1]). Needless to say, these control sections do not really *create* introjection and projection

processes for individuals, yet, they activate or intensify those processes which or probably are unconscious. In other words, they create those processes in an organizational setting through realizing individuals' (and *shared* [8]) mind processes in a higher level (i.e. an organizational level).

IV. RELATIONSHIPS BETWEEN THE PROCESSES AND IS PARTS

The mechanisms of projection/introjection are general for many purposes, as we mentioned.

However, from an applicability perspective, we should find for this case, the evident benefits, functionalities and dynamism of the mechanism (i.e. projection/introjection) within organizational settings.

Initially, it should be noted that, the general mechanism (projection/introjection, which is closely connected to incorporation, internalization and identification) as defense mechanism, cannot be totally developed in an organizational setting and as a part of IS user experience. That is because developing and flourishing such mechanisms/processes has been traced back to early childhood era.

However, the focus here is on the activating or intensifying grounds and conditions within organizational setting.

The recognition processes [8] and the hierarchy of power provides a potentiality for people to find the system as a holder of such (levels) of power and can interact with those.

These relationships should be considered as implicit hypotheses which in the next section go under assessment and partial solidification.

For limiting the discussion, in this study, there will be only some explanations for suggesting possible relationships which people can have with the system in connection with their super ego focusing on *what* they can introject or project in/to it. It specifically refers the rules and regulations which are imposed by the system (whether as work routines and standards or, the system's style of functionalities and the software properties), system alarms and controls, double checks and so on.

In this view, two types, appealing to an omnipotent entity (parental agent; could be considered roughly as "ego ideal") and following a moral entity (superego) are much on the focus.

Therefore, people attempts to introject the power and knowledge of the system, respecting its control flows. Moreover, they introject the wise image of a knowledgeable personality (person). In the next step, they try to project their performance and knowledge to contribute to it. The elaboration of posture and dynamism should be gone under a detailed investigation. However, as a *final* result of this study, we postulate that more system does permit to its users to contribute to its knowledgebase and controls and personalize its controls, so that they can identify their own *and* themselves within the system (can be occurred over time). It means, the system not acting as a rigid entity that interfere to projection mechanisms of the users. However, other aspects, such as how the system can act a medium to connect and consequently convey the introjections-projections process of its users to each other are remained for further inquiry.

V. EVIDENCES

The main evidences for this purpose, is about referring to emotional phenomena and dysfunction reported cases.

The other related phenomenon can be the relationships between the hierarchy and power with projection/introjection.

Provide evidence for this study is chose from a few past case studies. For a higher credibility, we directly refer to users' quote rather than researchers' assertions and conclusions.

We are focusing on those quotes which are about the perception of system as a knowledgeable and omnipotent entity. By now, we exclude the expressions about the ease/difficulty of use of the system, to do not involve technical issues at this stage of inquiry. However, the emotional aspects of user interfaces are important, because from our view, it present the difficulties of projection to system that somehow needs expressing feeling naturally. "it's the keyboard that's the problem" [4]. It includes their usual/unusual reactions to controls (to follow or rebel) and their impression of system's knowledge.

We use case studies of Lapointe works [3, 4]. This has been a significant case study [5]. The case studies are about implementing IS in health sector and express the tensions between different castes in hospital (i.e. physicians – generally or in special groups e.g. surgeons – nurses, lab technicians and so on).

Nonetheless it is remarkable that, not all cases are potential to show theses psychological aspects. For instance, in a very similar case study [6] in respect to the context and domain conditions, the quotes look like very rational and free of unreasonable feelings.

For the first quote, we consider this one to show the roots of difficulties between physicians and nurses (all quotes are picked up from [4]):

[*Italic stresses are from these authors.*]

Quote 1: "Given the way we entered prescriptions, we ended up creating their [the nurses'] care plans. They no longer had to prepare any care plans. It just came out of the machine. By working this way, *we were doing it for them.*" (Physician 8, Case 1).

Quote 2: "*It's a fancy toy*, that's all. For all that we get out of it, it turned out to be extremely expensive, because the value just isn't there." (Physician 10, Case 1.)

Quote 3: "When talking to doctors, you have to do it in a way that will make them receptive to your message" (Physician Administrator 1, Case 2.)

As it can be seen, a physician projects a feeling of degradation to nurses. It can be argued that, the roots can be traced back to the opposite of physicians' prestige. So, the prestige is one type of parental omnipotence that can be acquired only if the individual can project the internal (early childhood) impotence to someone else (e.g. nurses, patients, technicians) and partly introject into oneself and suppress it. As a positive point, in this scenario, it can easily be seen the intensity of the feeling, which can be later end up with a very drastic result, irrespective any rational problems in the background [3, 4]. However, as a negative instance, in this case it can only be observer that the one *indirectly* project their feeling to nurses through the system (can be also said that, project to the system through the nurses!) Therefore, the

main point is (regardless of degradation feelings cf [7]), according to some situations (mentioned in the case study), the projection to the others (i.e. nurses) are disrupted and subsequently (or simultaneously) the suppression of the internal impotence feelings with introjection of the same feeling from the system (can be assumed, even, indirectly) as nurses' job, is weakened and become ineffective. Regardless of rationalization mechanisms [1] for "*extremely expensive*" (a personal judgment of the physician), the stress in Quote 2 is on "*fancy toy*", something that is expected to be not practiced by parents rather than children (bold implications for the *superego sensitivity*). To observe this sensitivity (comparing to nurse) also see Quotes 3 and 6.

There are some common quotes that suggest the system is unwittingly treated animate and lively such as:

Quote 4: "... let's give it a month, we'll work with it and put *our energy* into it..." (Nurse 5, Case 1.)

The implication of "*energy*" is clear. It is just reminded that energy from a psychic view cannot be imaginable without feelings e.g. stimulation, sensation, enthusiasm and motivation.

The following quote shows a feeling between treating the system lively as a wise person (same as Quote 3) *or* as an automatic knowledgeable machine; though anyhow, as a typical representative evidence worth mentioning.

Quote 5: "You only have to enter the information on the patient. It takes a fraction of a second, and then the result pops out on the computer" (Nurse 5, Case 1)

Another trend which is important regarding this study's assertions refers to system-users sensitivity and feelings about the rule and regulation, preferably in both directions (introjection and projection.)

Quote 6: "...As you can see, we have protocols, *I have followed protocols*, postoperative protocols..." (Physician 10, Case 1).

It should be noted that, the main criterion for choosing the quotes are the observable cathected psychic energy to them, which is believed, in its turn, has a determining impact on the system adoption and usage (see the cases for the actual outcomes [3, 4].) Therefore in this study there is no intention to narrate all the events. Since, as final quotes the cathected energy for these one can easily be sensed.

Quote 7: "We gave them an *ultimatum* 'You better get it out of here, because if you don't, *there'll be trouble*' Then management literally *didn't believe us...*" (Physician 8, Case 3)

Quote 8: "After two days, the surgeons said they would *never* [work] with it. The system was too slow and *not at all* adapted to *their needs...*" (Physician 13, Case 3)

Quote 7 should be taken moderately, because according to the study [4], the reaction had had significant reasonable antecedents. However, Quote 8 is more direct respecting its background. Particularly it refers to a personal judgment "*...not at all adapted to their needs*"; whereas the system, though perhaps roughly, were initially designed and configured for the same purpose. Nevertheless, according to Lapointe model [3], in this stage the resistance permeated system advocates, and hence, went beyond of the system itself; yet the strong parental roles can be observed in these final quotes and may be considered as the result of a

reflected projection mechanism (and as was earlier mentioned, a partially *re-introjection* one) based on the initial introjected ideas. For another analysis through the identification process see also [7].

VI. SUMMARY AND FURTHER STUDIES

This study briefly discusses some considerations about users' psychic mechanisms and their possible relationships with IS concepts. To do so, firstly these mechanisms are centralized around a double mechanism of introjection-projection and a few family mechanisms. It is totally called a (comprehensive) *process*, and inevitably excluding other mechanisms, at least in an explicit form (though implicit forms can be found in the process). Afterward, the threatener controls of the system are suggested as the *targeted* parts. Then, the relationships are proposed and discussed in connection with the developmental course of superego and ego ideals. This is along with the assumption that, these processes are not created, yet activated, reinforced and intensified within organizational settings.

Nonetheless, to prevent enacting unestablished and vague conceptions at this stage of research and conceptualization, other potential conclusions are excluded except those which can be directly related to interpretations of superego and ego ideals.

Considering the system as a medium to connect people *emotionally* in organizational settings and, the process of forming groups [6] *in this way*, appear to be the proper candidates for future studies.

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