Leveraging Trust to Support Online Learning Creativity – A Case Study

The insights shared through this article build on data collected in real life situations. The work described here attempts to understand how trust can be used as leverage to support online learning and creative collaboration. This report explores this understanding from the teacher perspective. It examines trust commitments in an international setting within which learners from different European countries collaborate and articulate their learning tasks and skills at a distance. This research endeavour aims to recognize both individual and group vulnerabilities as opportunities to strengthen their cooperation and collaboration. We believe that by understanding how to assess and monitor learners’ trust, teachers could use this information to intervene and provide positive support, thereby promoting and reinforcing learners’ autonomy and their motivation to creatively engage in their learning activities.

The results gathered so far enabled an initial understanding of what to look for when monitoring trust with the intention of understanding and influencing learners’ behaviours. They point to three main aspects to monitor on students: (1) their perception of each others’ intentions, in a given context, (2) their level of cooperation as expressed by changes in individual and group commitments towards a particular activity; and, (3) their attitudes towards the use of communication mediums for learning purposes (intentions of use, actual use and reactions to actual use).

1. Introduction

This article focuses on the use of trust as leverage in technology enhanced learning settings.

Although most of us perceive educational settings as true and honest, we are also aware that there are exceptions, as individuals tend to favour their own well being over the community’s. This is even more so in online environments within which there is little or no threat of retribution (Preece, 2001). These exceptions potentially lead to mistrusted behaviours, which might result in a decrease in motivation, lower participation and lessened collaboration potentially leading to unsuccessful learning cases.

Building on the relation between trust and students’ attitudes in online environments, a research plan was devised comprising three main stages. The first stage provided a comprehensive understanding of what trust is and how it potentially relates to online learning communities.

Based on these results and during the second stage of this research plan, a socio-technical model of trust was designed and validated.

This article reports on part of the work carried out during the third phase of this research plan, within which we used a real life setting to observe students, seeking an understanding of the interplay between trust and the learners’ perceptions, commitments and attitudes.
The main goal is to model a tool to help online learning teachers and facilitators to design and deploy interventions fostering student’s trustful expectations and behaviours leading to higher student engagement and fruitful creative collaboration. A secondary goal is to raise both teachers’ and facilitators’ awareness of how important it is to support positive relations and cooperation.

2. Background

Today, the teacher’s role in education is seen as a facilitator of the learning process rather than the possessor of knowledge. This transformation has been and is being continuously supported by enhancements brought by technology into our learning settings. Learning anywhere and anytime is now an option for a significant part of the population, even when active participation and group collaboration are required.

However, this flexibility has also brought challenges to both teachers and learners, as it demands from all an up-to-date set of skills as well as it requires them to face the fast-paced evolution of education technology (Pink, 2008).

Moreover, even though technology has an important role in this change, technology per se does not have the ability to engage us in social, innovative and creative learning scenarios, and if the settings enabled by technology enhanced learning are not properly supported, then results can result in information overload, procrastinating attitudes, effects that will probably lead to the disruption of information flows and ongoing discussions.

Nevertheless, technology assumes an important role in fostering creativity through enriched collaboration, a role facilitated by motivated learners engaged in group cooperation.

That is why we aim to contribute to understand how trust can be leverage for supporting online learning creativity, as trust ensures effective commitments and reduces the level of uncertainty (Giddens, 1991, Kramer, 1996, Luhmann, 2000). We build our rational on the attempt to understand the potential of supporting trustful interactions as leverage to develop creativity and innovation among online learners.

2.1 Trust and online learning communities

In the attempt to observe possible implications of technology in contemporary education and learning processes’ we encounter in the literature four main aspects to be considered: (1) The degree of commitment with which each student addresses a specific learning activity, (2) The degree to which students share their resources, (3) How they communicate; and (4) How do they engage with others in the learning process (Gambetta, 1998, Tschannen-Moran, 2001, Preece, 2001, Preece & Shneitherman, 2009).

In this context, we took a closer look at trust, as we believe it plays a key role in supporting and motivating learner’s commitments towards learning and strengthens their learning collaboration. It is for these reasons that trust has been seen as a major determinant to foster individual active participation in social systems. What users perceive to be “trustworthy” in such systems is influenced by a number of factors, including perceptions of the communication medium, the history of participation and perception of other users (Davis, 1989; Meyerson, 1996; Lewis, 1985; Lewicki, 1995).

We propose to view trust as a sense making of the students’ interaction process. Although, we agree that trust multidisciplinary nature makes it a concept hard to discuss and consider in areas, which integrate social and computer science theories, it is possible to find consensus on the importance and contribution of the trust factor to support interpersonal relations or/and to enhanced technology mediated interactions.

As trust is considered an important element in influencing the success (or lack thereof) of a relationship in that it is a key element in influencing the willingness to cooperate, share and participate in a given context (Mishra, 1996; Guiddens, 1991), then within this focus we consider issues like learner’s persuasion, emotions and trust commitments important dimensions to attain when seeking for greater technological inclusion and learning success.

As an example of that multidisciplinary approach trust can be see from a sociological perspective as a reflection of behaviors, choices and decisions (Gambetta, 1998; Fukuyama, 1995; Garfinkel, 1963); for psychologists, trust is seen as an attitude or intention (Erikson, 1968; Rotter, 1971); on the other hand social psychologists interpret trust as an interpersonal phenomenon (Meyerson, 1996; Mishra, 1996; Weber, 2003; Luhmann, 2000), and economists see it as a commitment in a form of a rational decision (as a game) (Bachrach, 2007). More, the computer sciences perspective separates the trust concept in two distinct approaches, one connects trust to security processes, reputation and privacy (Abdul-Rahman, 1999; Walter, 2008; Falcone, 2002) and another relates trust to the interaction process that is
mediated through technology (Dong, 2010, Constantine, 2006; McKnight, 2002; Mcknight, 1996; Preece, 2001). Finally educators tend to see the trust concept more as an interpersonal phenomenon (Hoy, 2003; Tschannen-Moran, 2001).

Our definition of trust combines three interpretations; we share the social psychologists perspective with the economist’s views of commitment and connect it with the interaction process view presented in computer sciences. With this view we aim to connect our technological knowledge in human computer interaction with distance education paradigms and today’s online social facilitator phenomenon. From that perspective we see these human online facilitator factors manifested in online learning environment through small exchanges of learners’ behaviors, attitudes and expectations (those manifested through time and when learners’ interact online socially, and express or exchanges emotions and feelings).

2.2 A socio-technical model of trust

The reflections above lead us to the second step of our research within which a socio-technical model of trust was devised (see figure 1) which presents trust (1) as building upon trust predisposition, reciprocity, predictability, honesty, benevolence and competency; and (2) as determining Intentions to relate, manifested through behaviours, attitudes and beliefs, eventually leading to (or not) specific relations being established.

In this model:

- Trust predisposition represents the inclination to depend on each other, with a felling of relative security. Influencing the level of commitment of the group (two or more people) towards the situation (a learning activity or process).
- Reciprocity, believing that others have confidence on my actions increases my motivation to trust and my disposition to trust.
- Predictability, be able to perceiving others’ intentions in a given context and if the attitudes and behaviours match the ex-

![Figure 1: Trust social-technical model in TEL contexts](image-url)
2.3 Trust through time

Finally, as far as trust is concerned, three main moments in time were identified:

- A initial moment (the articulation), where attributes like reciprocity, predictability or honesty are important because they help to create learners’ empathy and commitments towards group work. The empathy supports the shift where the learner stops to see as individual and become part of a working community.

- A second moment in time (the connecting), ensure the success of the interaction and the success of precious working commitments. This moment provide necessary group support and continuity for the interaction process and the motivation to be positively engaged in the working task.

- The end moment (the reflection) happens after the course fulfilment, when students re-evaluate their experience and decide how this will effect future relations.

3. A Case Study

The observed case study was about Technology Enhanced Learning TEL course, is part of CoCreat, an European project about enabling creative collaboration through supportive technologies (http://let.oulu.fi/cocreat). The course, was deployed by four partners from eight different European countries, Fin-

land (University of Oulu); Norway (Norwegian University of Science and Technology Trondheim); Romania (Valahia University of Targoviste); and Estonia (Tallinn University).

The project’s main purpose is to find new solutions for promoting creative collaboration in terms of new and innovative learning models based on social media and mobile technology. Most activities performed in the course involve collaborative tasks, collaborative thinking and reflection. In the course students were initially divided into small groups (from 4 to 9 students maximum) and different tutors were assigned to the groups. All learning activities were design and coordinated by a teacher who coordinate overall group activities. The kick-off meeting was made via Adobe Connect Pro in 24th of February 2012, and students had face-to-face meetings with the local facilitators two week before the start.

3.1 Procedure

This study relied on an initial survey and diary logs observation procedure. The survey was conducted online by using an open source web application called LimeSurvey and used the Likert scale as well as open-ended answers. The survey’s aim was to explore students’ background profile (gender, age and nationality), their initial social interaction perspectives (on safeness, and privacy preferences) and finally explores students’ use of social media towards learning. Accounted for fifteen (15) questions. Forty-nine (49) students answered to the survey from a sample of fifty-five (55) students. Two (2) of those forty-nine (49) inquires were considering invalid due to be incomplete. Which resulted in the analysis of the answers of six (6) Estonian participants, eighteen (18) Finnish, one (1) Norwegian and twenty-two (22) Romanians.

The observed students included two distinctive groups (“Tech-Designers” and the “ThoseTwoLives”). The first observed group, included 3 from Finland and 1 from Romania, the second observed group included three (3) from Finland, three (3) from Romania and one (1) from Estonia.

The diary Log procedure observed students discussion, group interactions and final achievements) and make possible interconnections between (1) how learners perceive others intentions and how this affects the collaboration context, second (2) how learner’s commitments (level of cooperation) towards particular activity changed collaboration patterns; and final (3) How the communication medium (reactions, intentions of use and actual use) affected learners’ trust perceptions. The diary Log procedure observed students discussion, group interactions and final achievements) and make possible interconnections between (1) how learners perceive others intentions and how this affects the collaboration context, second (2) how learner’s commitments (level of cooperation) towards particular activity changed collaboration patterns; and final (3) How the commu-
nication medium (reactions, intentions of use and actual use) affected learners’ trust perceptions.

The observation period included a 10 weeks of activities. The tutor role was to fill observation diaries based in three matrix table items (group discussions, group interactions activities and group cooperation to fulfill their weekly tasks) and their perception of students’ behaviors, attitudes and believed.

The weekly observed assignments and task were divided into five (5) major observation groups:

- Observation 1 (weeks 1 and 2) Main activity: “Get to know each other”, activities individual asynchronous communication interactions.
- Observation 2 (weeks 3 and 4) Main activity: “Report on future working methods and communication mediums”, activities included group asynchronous and group synchronous communications discussions.
- Observation 3 (Weeks 5 and 6). Main activity: “Write the Pedagogical script”, activities includes asynchronous and synchronous group discussions, group work assignments.
- Observation 4 (Weeks 7 and 8). Main activity: “Provide peer-to-peer feed-back”, the activity was a group assignment task.
- Observation 5 (Weeks 9 and 10). Main activity: “Write the Technical script”, activities includes asynchronous and synchronous group discussions, group work assignments.

This case study contributed towards not only to understand trust and it’s implications in a real case context, but also to understand how teachers can use it to support and mediate learner’s interactions.

The observed course started in 24th of February and last 14 weeks (a semester) and was deployed at a distance. The course-learning environment was supported by two main technological platforms, Second Life and Moodle. Course learning activities were planed to foster international students collaboration. Course evaluation process includes a sort of assessments like, peer-evaluation discussions, reading tasks; commenting on weekly topic and individual and collaborative studying. In this course students were expected to design, development and implement their own TEL course. Course included 15 hours of lectures and individual and collaborative studying’s.

3.2 Results

According to data, participants’ age range varies from 19 to 52 years old and all participants had at least a higher degree. Majority uses Internet daily (85.71\%) and consider as most useful activities, activities like:

- Reading and sending e-mail;
- Search for information;
- Learning online; and
- Sharing ideas in formal education contexts (see figure 2).

Regarding participants online social activities, the inquired students claimed to publish very often, especially information about friends or themselves. They, also, use online tools or services in a daily bases. Tools most used are mobile wireless devices (32.65\%), search engines (59.18\%) and social networks (40.82\%). Regularly, collaborative sharing tools (42.86\%). Sometimes students use computer assessments and close learning environments. Not use at all, or used at least a few times collaborative drawing and social bookmarking services. Students expect, as well, that teacher clearly define course privacy rules (42.86\%), in regarding what will remain private or public in the course.

The survey analysis also indicates that students feel safe i.e. falling a degree of control, which will read or have access to their

Figure 2: Activity and daily routines
shared resources, comments and assignments to share in the following online scenarios;

- In e-collaborative learning (57.14%) or in social network (44.90%) scenarios that uses for example tools like Google docs, EtherPad, dropdown, Facebook, Google +, Twitter).
- In close learning environments (42.86%).

But, seemed to be undecided on regard the safety of open environments that uses public blog-posts, public forum discussions or Second Life, see figure 3.

Regarding students privacy preferences, it seems that students prefer to keep the information private by default, especially

- Grading (36.73%) information,
- Feedback and comments (36.73%).

Regarding the diaries logs analysis, we focus our analysis in observing changes from the students perspective towards a particular activity and then cross those particular moments with the data provided by the learning management system LMS looking for changes on indicators. Results were summed and addressed in six (6) important issues, those are:

- Students’ commitments and group bound;
- Support communication; and
- Work articulation and social connection;

**Students’ commitments and group bound.** The first activity (occurred during the two weeks OBs1) aimed to introduce student’s teachers. Although according to data that during that week students did not engage social with the intensity it was expected. Data revealed that students initial commitments started to be built during OBs2 phase, when students started to discuss synchronously their future working methods and what communication mediums to use in the future. The group bound increased when divided in small groups and reach an important moment when students needed to articulate much their ideas to finished OBs3 activities, i.e. when they needed to write their Pedagogical script.

Results also indicate that group social commitment and work articulation increased near a deliver deadline. During those moments in time groups work cooperation increased and become much higher after a synchronous communication (via Second Life). During those periods each individual (on his way) seemed to become more committed towards the group as well as their level of empathy increased. Again during those moments the hostility towards the elements of the group who cooperate less increased.

**Support communication.** The teacher role in foster communication was important, but not influenced student’s perceptions (reactions, intentions of use and actual use) towards the communication medium. This was particular important to diminishing the existing technological, social and education cultural bias between Finish students and Romanian students. There was a clear tendency as well between familiarity and students believe on tool efficiency.

**The work articulation and social connection.** The tutor support and student’s role-play were vital for foster the work articulation moment’s in the course. In this case all actors quickly interchanged information in the group and provided efforts to keep the group connected, what seemed to support the group cooperation in future actions. Some individuals tended to assume more their roles than others, some passively students (less experienced with the environment) waited for others to define and establish the working and social rules before start to act. The initiator-contributor role assumed by some students helped to initiate the collaboration process, but in this case for this role to work most elements of the group had to be committed and provide feedback and cooperate when needed, as those who where assigned to perform the initiator-contributor role had to propose ideas or approaches to group problem solving and suggestion an approach for procedure.
Results reveal that in spite both groups achieved expected results, the “Tech-Designers” reached the group commitment and it members collaborate more than the “ThoseTwoLives”, what affected the group performance.

The “ThoseTwoLives” encounter an initial problems in initiate their group activities during Week 5 and 6.

Group lack of reciprocity (no answer back or big spaces between answers) during their asynchronous discussion aggravates that problem.

Group commitment was recovered through teacher support and two synchronous meetings, until then the “ThoseTwoLives” group found difficulties in cooperate and collaboratively work together.

3.3 Discussion

The Learning Managing System indicators show that the most social and committed students tend to be more successful in perform their activities and tended also to become the group leaders. On the other hand more competent and experiment students tend to contribute more during the synchronous communication than the other. The remaining students (less social engaged, committed or competent) tend to follow group work and contribute punctually.

Group-working methods differentiated from group to group, though in the end the majority of the groups achieved pretended results. Major group concerns were in understands what actions they will need to take (each week) to achieve pretended results. Also there is evidence that the group work climate (creative collaboration) and group commitment (cooperation) increased significantly near assignment delivering deadline. Until then, most exchanged messages demonstrate attempts to understand how to behave online, set the work climate and to define working actions that eventually lead to achieve their learning aims. Also, the individual commitment to the task seamed to influence the group performance, especially when the group needed to articulate a working process. Group collaboration became higher through time.

Another behaviour that affected individuals or group commitments was the perception of other individual as competent and predictable. Members of the group that keep the group together were also those who established the working rules and level of commitment of each individual. Tutor support during the synchronous communication, was also important to mediate the individual and group commitments and to establishes the communication climate (what we see as the initial trust bound).

Results also showed a cultural bias towards the communication medium, the familiarity and the actual use of the tools (perception of efficiency). Finish students seamed more familiar with online tool and it efficiency than the Romanian, what influenced students sharing patterns, group interactions, learning paths and affected their performances. Also, individuals more commitment to the group collaboration tend to expect more active asynchronous discussion when compared to the others.

On the other hand those who initiate group initial articulation (the initiator-contributors) also seamed more committed to the work than others. Others needed for initial synchronous before start to actively collaborate. The teacher main role was to provide support and scaffolding.

4. Conclusion

This work’s major contribution is the intersection of areas such as trust, creativity and collaboration and it main outcome aims to provide a comprehensive understand on how trust can be leverage for supporting online learning creativity,

The achieved results clearly distinguish learners commitments as an important key towels establishing group collaboration and to ensure the success of the learning activity. Contradictory to what expect open or close activities seemed less important for ensure the success of the activity and the group interaction than their commitment towards the work and the group.

Competency, reciprocity and benevolence were important attributes to ensure students initial work articulation. Predictability, honesty and competency as well as reciprocity were important attributes for engaging the group bound through time and ensure group overall group commitment. Competency and benevolence of participants seamed to be the most important skills for achieving the initial work articulation and not their capacity to interact or communicate asynchronously. Then, during the connection phase, competency, honesty and predictability assumed an important role.

Reciprocity actions in the group seamed to validate both communication phases special when students initiated a new task activity.
In return, tool familiarity and usefulness were important attributes for select the communication tool and to guarantee the communication efficiency. Safe communications were related more with this attributes that privacy or tool secureness.

As future aims, towards this work is to develop a tool, which support teachers on designing instruments and activities that foster students and group commitments. This tool aims as well to assess learners’ trust commitments during the articulation and the connection phases so, it allows teachers to identify variations on students’ trust commitments and apply interventions if needed.

References


