

A STUDY ON THE IMPORTANCE OF FOSTERING TRUST IN A DISTANCE LEARNING COMMUNITY

Sónia Sousa, David Lamas

Universidade Jean Piaget de Cabo Verde. Cape Verde
scs@unipiaget.cv

Brian Hudson

Sheffield Hallam University. United Kingdom
B.G.Hudson@shu.ac.uk

Abstract

This paper describes a study being conducted on a graduate level online distance education course at an African university. This document addresses a research to understand learners' trust in relation to particular trust factors in her or his academic performance when studying at a distance.

In order to attain this goal a study, which accounts for both a quantitative and qualitative data collection was procedure.

Results gather therefore confirms the trust relevance when learning at a distance. This work also stresses the importance of fostering trust in a distance learning community and in improving trustful online distance learning environments.

Appended to that research is the development of an **Information and Communication Technology online** course was design, developed and deployed. As a consequence, today *Universidade Jean Piaget de Cabo Verde* students learn how to use a computer and the internet mainly at a distance.

This **Information and Communication Technology online** course had been applied since 2002 to every initial graduation year at *Universidade Jean Piaget de Cabo Verde*, in *Cape Verde*. This setting diminishes possible technological phobia and contributes towards the integration of the use of Information and Communication Technology in students' daily lives. Thus a contribution to reducing the existing gap between developed and developing countries.

Keywords: Online distance Learning, Distance education, Trust, Performance, Information and Communication Technology online course.

1 Introduction

Contrary to early distance education, today's online tools allow communication processes much closer to face-to-face than their off-line counterparts. This characteristic can, sometimes, lead learners and teachers to expect online social rules and attitudes to be similar to face-to-face situations. Unfortunately, online communication lacks in a number of ways less obvious or indirect communication features, potentially misleading the parties involved to confusion, and frustration towards the virtual environment and their interlocutors (Wilson, 1996a).

In online distance learning, avoiding or diminishing the risks of confusion, misunderstanding and frustration in the communication process is crucial as this process is the only link connecting the student with her peers, teachers and education institution (Preece, 2000 and Ryder, 1996). On the other hand, online teachers usually adopt more open, decentralised and informal actions to lead the learner to their aims asking students to assume part of the traditional teacher role, creating their agenda and taking charge of their own learning whereas the teacher is expected to come forward with answers to the students' requests (Wilson, 1996b).

This happens as general online distance education methodologies usually follow a learning methodology, which seeks to adapt to each learner's needs and guide them towards the satisfaction of their needs and goals. These learning methodologies imply the engagement of learners and teachers' co-operative actions, which rely on sound and reliable communication processes. Communication processes that are able to foster sound and trustful online distance learning processes lead to successful teaching and learning experiences. Thus, the belief underlying the empirical study about to be presented, is that students' trust in the online distance learning process is the common denominator of several related problems leading to low academic performance, such as:

- Lack of motivation;
- Frustration; and
- Anxiety.

This is so as the above trust related problems might impair the student's will to co-operate and engage in a distance learning environment thus affecting his or hers academic performance. It is our belief that trust plays a crucial role in the success of online distance learning, hence this effort to investigate the interaction of trust with online distance learning specially regarding academic performance. This paper begins by setting the context of the work herein depicted, presents the methodology and the results of an empirical study undertaken to foster the understanding of the effects of trust on academic performance in online distance learning and ends highlighting its main contributions.

1.1 Context

This paper addresses a study performed in *Cape Verde* at *Universidade Jean Piaget de Cabo Verde* whose main purpose to understand the interaction

between trust and performance in online distance learning. To find answers to the above questions, an empirical study was conducted at graduation level using an **Information and Communication Technology online** distance learning course. The following paragraphs briefly introduces us to the research context within which this work was carried out, a brief introduction will be provided about *Cape Verde*, about the university and about the course taught at a distance.

1.1.1 Cape Verde

Cape Verde has a population over 400.000. The majority of *Cape Verde* population is young. The national language is Creole (Krioulo) and Portuguese is the official language. *Cape Verde* is a Least Developed Country. The *Cape Verde* economy is fragile because this country has few natural resources and limited agricultural possibilities, which makes it heavily dependent on foreign assistance and overseas resources. This country has very unfavourable import/export rates as most of its resources are imported from neighboring countries such as Senegal and the Canaries and from those who share a common language such as Brazil and Portugal. Export figures are close to nil. Nevertheless, *Cape Verde* has made a considerable effort to foster the development of its educational sector. It has close to eighty per cent literacy rate but no concrete plan to supply all schools with personal computers or internet connections, one of the school problems' being its lack of technical know-how on a number of fields related to the overall education process. Again, in the higher education area, *Cape Verde* suffers from a lack of opportunity as there are only seven higher education institutions including one of the newest, *Universidade Jean Piaget de Cabo Verde*. *Cape Verde's* lack of opportunity in higher education implies that most students must go abroad in order to pursue their education. Over 2000 Cape-verdeans are pursuing tertiary education abroad, primarily in Brazil and Portugal and an estimated 1500 study in *Cape Verde*.

Cape Verde's information and communication development started relatively late. The country's mass media is underdeveloped, although *Cape Verdean* exposure to mass media is considerable. Internet facilities are still in expansion in *Cape Verde* and unfortunately there is only one Internet Service Provider (ISP) and limited but costly broad band access. This obviously results in a very low Internet usage penetration rate although information and communication technologies have a considerable potential in this archipelago country in the education, government and health sectors. The Internet could definitely play a key role in providing greater education opportunities to all but *Cape Verde* still needs to make a big effort to push itself into the information society alone, not to mention the knowledge society.

1.1.2 The University

Within this general context, *Universidade Jean Piaget de Cabo Verde* is located in Praia. Praia is the capital city of *Cape Verde* and is situated in Santiago Island. *Universidade Jean Piaget de Cabo Verde* is one of *Instituto Piaget's* higher education institutions, which are spread over Mozambique, Angola, *Cape Verde* and Portugal. From its start, the university was willing to integrate this community into a broader community, the *Instituto Piaget* community. Therefore, invested on the development of a distance education program to

cater for the needs of its students and teachers. This included the development of a **Information and Communication Technology online** course as its first undergraduate online course to foster students' self-sustained distance learning and ICT skills. This course forms a part of every *Universidade Jean Piaget de Cabo Verde* first year curricula and has been implemented since 2002.

Information and Communication Technology online course

The **Information and Communication Technology online** course, taught at a distance, is a first year subject attended by every under-graduate student at the university. Its main goal is to foster students' interest and know-how in the day-to-day use of the Information and Communication Technology throughout their course and lives.

Although referred to as *taught at a distance*, the **ICT online** course has two face to face moments, one in the beginning of the programme and another one at its end. The main paradigm of use at the university is based on self-study, through which learning objects support a pre-determined learning purpose. Special attention was also given to both individual and environment discriminative attributes as mentioned above. The instructional design is based on goal-oriented learning activities in which students are requested to perform specific weekly tasks. This includes a text-based content with exercises, multimedia illustrations, interactive graphics, and assessed feedback. Asynchronous and synchronous online discussions are also facilitated every two weeks.

A very detailed student guide and learning strategy help line is available for both students and teachers. Each aspect of learning content is hierarchically organised, content written in small chunks to enable a better compression and a printable version made available. Moreover, collaboration opportunities are made available through the teaching and learning strategy. As the majority of students had no access to the Internet or computer facilities two computer laboratories together with a help desk facilities were available for students. This common space in which the **ICT online** course took place provided opportunities to collaboration among the students. Such opportunities specially occurred when students' worked on their skills content part of the **Information and Communication Technology online** course.

In the end, this instructional design strategy aimed to guide students throughout their course and simultaneously respect their learning styles, needs and opportunities.

The **ICT online** course was implemented during the second semester of 2002/2003 and involved close to a hundred students. The pass rate was over 90% with grades presenting a normal pattern consistent with other courses and courses. Eventually in spite of stressful moments that occurred together with technical infrastructure difficulties, students' performance improved with time as they became more and more used to studying online. At that time as most students did not have access to a personal computer at home the computers were heavily used. Also, data access rated provided by the Learning Management System showed that students continued to use the **Information and Communication Technology online** course six months after it finished. At the end of the course, research indicators revealed that students generally accepted learning online and the majority stated that would not mind attending

an online course again, in spite of being used to teacher centered classes in which they sit passively waiting for the lecturer to transfer her or his knowledge.

Today, the university is extending the number of library computers due to demand and the impact of the **ICT online** course on the way students perceive and use computers and the Internet. At this time the university provides an average of ten persons per computer. The university also has integrated new distance education rules and regulations and new online distance learning measures. Two more online distance learning **Information and Communication Technology online courses** with similar characteristics are being implemented. These are included in all first year course curricula and involves Portuguese and English contents. The *Universidade Jean Piaget de Cabo Verde* has also been recognised by the *Instituto Piaget* community and *Cape Verde* community as a distance education provider. It works in collaboration with both communities on the development and implementation of distance learning initiatives.

Further it will be presented the research strategy implemented to understand the effects of trust on academic performance in online distance learning.

1.2 Research questions and strategy

A multi-method approach was used to attain these empirical research aims by triangulation of the findings from each approach. Two distinct research stages were developed:

Stage one was designed to identify the main trust factors. Main trust factors that, according with the under-graduated students at *Universidade Jean Piaget de Cabo Verde*, are relevant in online distance learning.

Stage two goal is the characterisation of the relation between trust and performance in online distance learning.

Adding detail to the overall research methodology in Figure 1 diagram presented provides a more detailed overview.

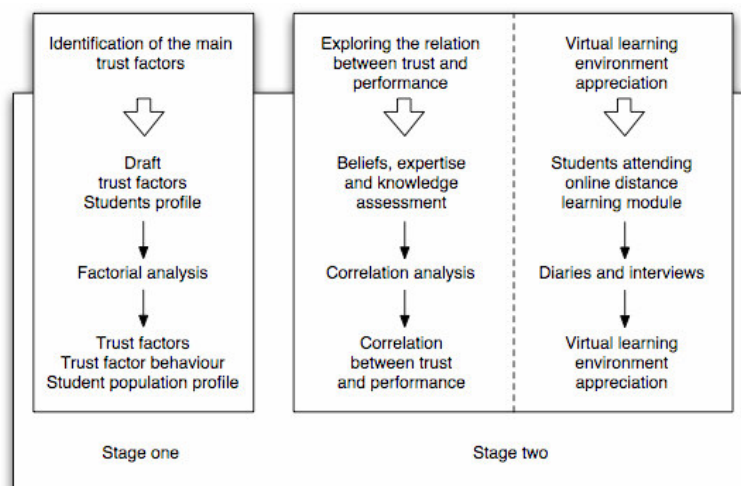


Figure 1 - Overall research methodology diagram

1.2.1 Stage one

This research stage was designed to identify the main trust factors. In order to achieve this goal a survey was conducted followed by a factorial data analysis. The survey's questionnaire included a total of eighty-five questions (A translated copy of the survey is available in appendix). of which:

- Twenty-two questions covered the students' demographic data as well as their skills in information and communication technology. Those twenty-two questions aimed to provide an initial student profile at *Universidade Jean Piaget de Cabo Verde*.
- Sixty-three related to the influence of trust in online distance learning. These questions resulted of six clusters of approximately ten (10) sentences for each one in the six initial draft trust factors.

Figure 2 provides a diagram that provides an overall view the survey's procedure.

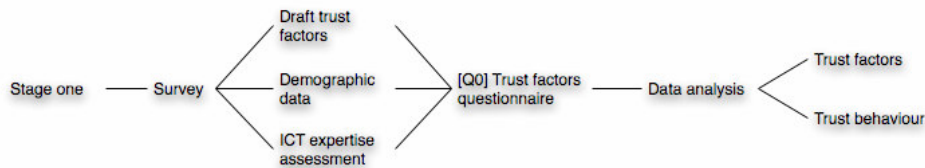


Figure 2 - Stage one research methodology elements

Results gathered from this first stage contributed to the design of the second research stage. Please refer to Sousa (2003) for a presentation of the design and results of this first stage.

1.2.2 Stage Two

As depicted before in Figure 1, the second research stage was designed to:

- Explore the relation between trust and performance \ie test the hypotheses that trust and performance are related in online distance learning; and in parallel to
- Assess the students' trust specific appreciation of the virtual learning environment provided by *Universidade Jean Piaget de Cabo Verde*. Providing an additional insight on the use of the **Information and Communication Technology online** course to explore the relation between trust and performance.

As schematically presented in Figure 3, this second research stage used non-interventionist multi-methodological approach.

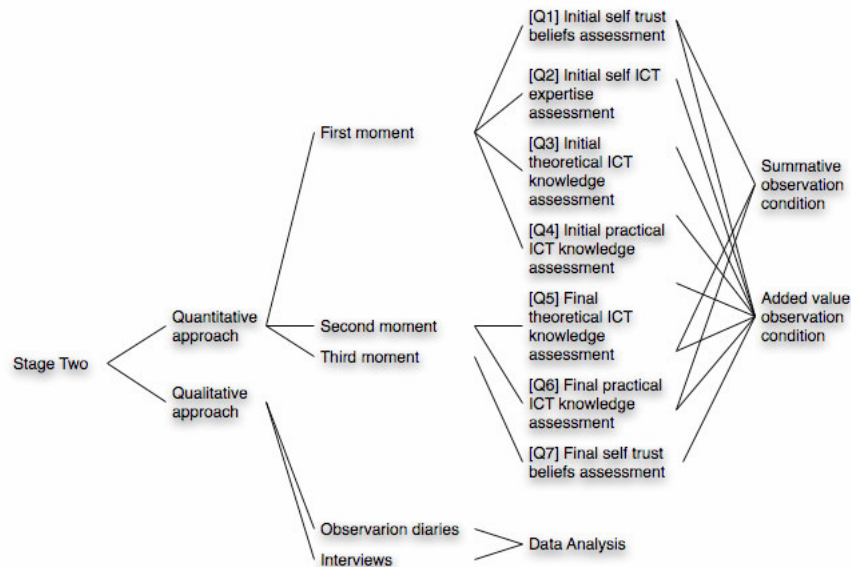


Figure 3 - Stage two research methodology elements

A quantitative approach caters for testing the hypotheses that trust and performance are related in online distance learning whereas a qualitative approach deals with a parallel assessment of the students' appreciation of trust specific aspects of the virtual learning environment. The qualitative approach looks into the relation between trust and performance from two observation conditions:

- Studying the relation between students' trust and their academic performance as gathered from the students' summative assessments results on the **ICT online** course; and
- Studying the relation between students' trust and their performance, using the results of students' academic added values looking into the variation of the students' trust and academic performance as measured at the beginning and end of the **ICT online** course.

The quantitative approach data was gathered in three different moments in time whereas the qualitative approach data was collected throughout the entire lapse of time:

First moment — The first quantitative data collection moment occurred before the start of the **ICT online** course. At this time, four questionnaires were applied to gather data on the students' initial:

- Self trust beliefs (questionnaire [Q1]);
- Self information and communication technology expertise (questionnaire [Q2]);
- Theoretical ICT knowledge (questionnaire [Q3]); and
- Practical ICT knowledge (questionnaire [Q4]).

Second moment — This second quantitative data collection moment was accomplished during the course of the online course. Two questionnaires were used to:

- Assess the students' theoretical ICT knowledge after attending the equivalent of eight hours of theoretical ICT content lessons (questionnaire [Q5]); and
- Assess the students' practical ICT knowledge after attending the equivalent of eight hours of practical ICT content lessons (questionnaire [Q6]).

Third moment — This third and last quantitative data collection moment took place at the end of the **ICT online** course. A last questionnaire (questionnaire [Q7]) was applied to gather data on the students' trust beliefs after completing the **ICT online** course.

Throughout the entire lapse of time — Data related to the **ICT online** course usage appreciation was collected in observation diaries throughout the duration of the course. This qualitative data gathering was later complemented with 35 additional interviews conducted in the course end.

The online course ran for fifteen weeks (An academic semester last for fifteen weeks in *Universidade Jean Piaget de Cabo Verde*).

2 Conclusions

One major result of this research study is the confirmation that trust is a key issue in online distance learning environments as shown by the results of the first stage of this study which highlighted three main trust factors:

Factor 1 - Students' trust towards the interaction between students and teachers;

Factor 2 - Students' trust towards the virtual learning environment; and

Factor 3 - Students' trust towards technology.

The same data collection tool - a questionnaire - used on the survey conducted as part of the first stage of this study also fostered the understanding of trust:

- Across the main three factors identified;
- Across age and gender;
- Among subjects' computer ownership condition;
- Across internet access condition; and
- Across previous experience in distance education and information, and communication technology knowledge and skills.
- Please refer to Sousa (2003) for more information results of this first stage.

Second stage results indicate a correlation between the students' trust and their academic performance although those correlation's were indirect in both observation conditions.

- Results from the first approaches show a negative correlation between trust marks of all three trust factors and the academic performance of the students; as well as

- Results achieved from the second approach, show a negative correlation between trust and students' academic performance over factors two and three.

According to the above results, students with an initial high level of trust will probably achieve worse academic performance. Especially those students, who according to the second research approach, rank higher on *trust towards virtual learning environment* and *trust towards technology*. Those students will probably achieve worse academic results when compared to their colleagues, who rank lower on *trust towards virtual learning environments* and *trust towards technology*. As stranger it might seem maybe, within an online distance learning environment, less trustworthy students are expected to produce better performance. Or maybe when the trust is too high, the unexpected difficulties introduced by the environment produce a global failure of performance (Castelfranchi, 2004)

Finally, a third approach — this one qualitative — showed that the majority of the students considered attending the **ICT online** course a good experience. Generally students displayed motivation towards learning online although there were moments in time where students manifested anxiety and frustration, especially when a technical failure occurred near a summative assessment activity date or deadline.

Those changes occurred during specific course contents and during specific moments in time, like near a technical failure, or during lack of teacher and student communication periods, especially if those occurred near an assessment period. Here the majority of students agreed that trust represents a key factor in an online distance learning environment. Also, most students agreed that in online relationships, a face-to-face opportunity could help foster trust.

Results addressed above show us the need for the understand of trust and its degree and influence on students' performance within and online distance learning process is more difficult as it seems. In this case time, space and technology within the online distance learning process can influence student's trust beliefs and therefore influence their motivation and will to co-operate. To understand people's trust we also need to understand their surround environment, as people's trust belief and its fluctuation depends also of their social context (Gameta, 1998). The answer for a successful online distance learning design should remain in providing the adequate level of trust needed to,

- maintain students' motivation towards their learning;
- help them dealing with their punctual frustrations;
- provide student's feelings of safeness and acceptance within their learning community group; and
- be able to engage in a mutual dialogue with their teacher and colleagues.

This lead us to conclude that today, distance education pedagogues should integrated a trustful virtual learning environments, special those who concern with the constructivist education models. As for a virtual learning environment to prosper within those network technologies, learners must be willing to use the learning resources and to engage in a online interaction with their teacher or

colleagues in a order to support their own learning. In an online context users hardly make eye and gestural contact with their partners. Such online distance communication if not well cared for, implies a lack of dimensions of: character, personality, nature of the relationship, institutional values, familiarity, sharing of system values, gender, age, role, social status, occupation or body language... those which we normally rely on to form attitudes or base decisions of trust.

New trust sights and new legal and social rules are necessary for building trust in the information communication technology societies. And more research need to be conducted to validate the relationship between users' online trust experienced feelings and beliefs, especially within online distance learning networks. Those results reinforce complexity and dynamism of trust relations. As well as the presenting empirical work results in this document serves as a reminder of the importance of trust in online distance learning environments and highlights the need to keep on studying the trust influence within it process.

It also illustrates that even with a minimal technological conditions is possible to ensure a successful online distance learning environment. It indicates that is reliable implement information and technology communication online distance learning self-sustain course in a developing country. Although within it minimal conditions have to be established and does not always concerns the technological conditions, but also concerns the institution, teacher and students willing to teach and learn at a distance.

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