

A Web-Based Questionnaire of Ethical Skills

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Abstract

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The web-based Questionnaire of Ethical Skills (QES) is a technology tool that measures ethical competence in business as a psychological problem-solving and decision-making skill. Autonomous reasoning is measured by this questionnaire, what is in psychological terms known as ethical competence. Information and communication technology tools – as the one that is presented here - should be used to do special training and facilitate the achievement of ethical competence. With this questionnaire we want to assess the way the participants solve ethical problems and make decisions. We go further compared to Kavathatzopoulos & Rigas' paper questionnaire (2006) that has certain limitations regarding the four alternatives per dilemma. We are more flexible by using this technology in testing different combinations of alternatives.

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INDEX

INTRODUCTION 6

PART I: THEORETICAL FRAME 8

1. COMPUTER ETHICS..... 8

 1.1. Need for Ethics in a changing society: 8

 1.2. Business ethics: 8

 1.3. Computer ethics:..... 9

 1.4. Handling moral problems (Heteronomous and Autonomous reasoning): 10

 1.5. Ethical competence:..... 11

2. A WEB BASED QUESTIONNAIRE OF ETHICAL SKILLS 12

 2.1. An educational technology tool 12

 2.2. Ethical Competence Questionnaire..... 13

PART II: PRACTICAL FRAME 16

1. QUESTIONNAIRE DESCRIPTION 16

 1.1. Dilemmas:..... 16

 1.2. Alternatives: 16

 1.3. Scoring:..... 17

2. DESIGN OF USER INTERFACE: USABILITY STUDY 19

 2.1. User application 19

 2.1.1. Analysis of a Design Problem 19

 2.1.1.1. OLE Analysis 21

 2.1.1.2. User Analysis..... 25

 2.1.1.3. Task Analysis 27

 2.1.2. Design of the System..... 30

 2.1.2.1. Storyboard of the system 30

 2.1.2.2. Design of a prototype..... 32

 2.1.2.3. QOC documentation 34

 2.1.3. Usability Evaluation 35

 2.1.3.1. Heuristic Evaluation..... 35

 2.1.3.2. User Testing 37

 2.2 Administrator application 39

 2.2.1. Analysis of the Design Problem..... 39

 2.2.1.1. OLE Analysis 40

 2.2.1.2. User Analysis..... 43

 2.2.1.3. Task Analysis 45

 2.2.2. Design of the System..... 48

 2.2.2.1. Storyboard of the system 48

2.2.2.2. Prototype of the system	50
2.2.2.3. QOC Documentation	52
2.2.3. Usability Evaluation	54
2.2.3.1 Heuristic evaluation	54
2.2.3.2. User Testing	56
3. STRUCTURED SYSTEM ANALYSIS AND DESIGN	57
3.1. Environmental Model	57
3.1.1. Statement of Purpose	57
3.1.2. Context Diagram	58
3.1.3. Event List:	59
3.2. Behavioural Model:	60
3.2.1. Data Flow Diagram (DFD):	60
3.2.2. Process Specification:	65
3.2.3. Data Dictionary:	72
3.2.4. Entity-Relationship Diagram:	73
CONCLUSIONS	75
BIBLIOGRAPHY	77
ANNEXES	79
1. DILEMMAS AND ALTERNATIVES	79
2. ADMINISTRATION USER GUIDE	117
LOG IN	117
GENERAL INFORMATION	117
ABOUT THE MENU	117
HOME	118
CONFIGURE THE QUESTIONNAIRE	118
ADD	119
How to add a dilemma	120
How to add an alternative	120
CONSULT	121
How to consult a dilemma	121
How to consult an alternative	121

How to consult a user	121
EDIT	122
How to edit a dilemma	122
How to edit an alternative	122
LOCK	122
How to lock a dilemma	122
How to lock an alternative	123
UNLOCK	123
How to unlock a dilemma	123
How to unlock an alternative	124
DELETE	124
How to delete a dilemma	124
How to delete an alternative	125
How to delete a user	125
LOG OUT	125

INTRODUCTION

In our global changing world, information and communication technologies acquire, more and more, a big importance and increase the number of ethical problems that we can be confronted with, in our private as well as in our business life. We encounter a lack of moral guidance to help us solve those conflicts. That is why ethical competence stands out as an important matter to focus our interest on.

It is important, for persons as well as for organizations, to have competent skills to handle moral problems especially in professional life.

It is needed:

- High ethical awareness,
- adaptive ethical problem-solving and decision-making abilities at individual and group level, and
- effective ethical argumentation skills. (Kavathatzopoulos)

Ethical competence is therefore the most important goal of training programs in business ethics, and this project is focus on this purpose.

In psychological terms ethical competence is defined as a cognitive ability, described as autonomy. Autonomous persons focus their attention on the specific moral conflict situation instead of concentrate on the moral values or moral authorities.

The use of information and communication technology tools should be used to do special training and facilitate the achievement of ethical competence. The important fact is how people reason in front of a moral problem and not the solutions they give, so this is what training can achieve, the possibility to increase ethical skills.

This project is divided in two different parts: user application and administrator application.

The user application is a website that contains the questionnaire and which users will see and work with. This is the educational tool the user will use to train his/her ethical competent skills. And this is why the project is it named “A web based questionnaire of ethical skills”

Regarding to the administrator application, it is another website that controls the user application. It has its importance, because it is the administrator who decides how the questionnaire should be done and how it should be answered.

There are several reasons why this project is a technology tool. The first of it is because we are in a changing world where technology has a very important role and where Internet is the best way of communication. That is why we have a web based

questionnaire in order to reach a bigger amount of people. Another reason is that the questionnaire format can be changed more easily thanks to the administrator's part. We may say that these are the "technical" reasons.

However the most important reason is to go further compared to Kavathatzopoulos & Rigas's paper questionnaire (2006) that has certain limitations regarding the four alternatives per dilemma. We want to be more flexible by using this technology in testing different combinations of alternatives: two, four or eight alternatives per dilemma.

PART I: THEORETICAL FRAME

1. COMPUTER ETHICS

1.1. Need for Ethics in a changing society:

We are in a global and constantly changing world where the advances in the fields of information and communication technology (ICT) increases the number of ethical problems that we can be confronted with in our private as well as in our business life.

Ethics is applied in daily life, because it is the necessary help to solve moral conflicts that can appear. It is true that ethics does not give recipes, or give the essential key for the problem's resolution but it is a guide and a basic frame of application.

People living and working together need ethical rules that show us how to behave in certain conditions, how to be and cooperate with each other. Moral rules help us to predict the behavior of others, guide our actions, and tell us what we have to expect from our own and other groups, organizations and social situations. These rules are necessary because society can not function without them.

The problem that we encounter is our changing society. It changes so rapidly that we do not have access to such moral rules that can guide us and give us the necessary knowledge to solve all the new moral conflicts that we are confronted with. Our modern society is more complex and unpredictable than before and we can not find the right answers for ethical problems in old moral codes, habits and traditions.

The constructions of new ethical rules demands stable conditions what we do not have in today's society. Ethic has not yet adapted to the speed of our changing world. The XXI century new advances had made the classic ethic's codes obsoletes.

1.2. Business ethics:

Business ethics is the application of our understanding of what is good and right to institutions, technologies, transactions, activities, and pursuits which we call "business". (Velasquez, 1994)

To make decisions in business world as well as in every social circle, we have to be informed, to think and to consider the consequences of our decisions. To make a decision we have to define perfectly the situation. It is not easy to apply ethical and fair criteria in companies; for example, it is not easy to evaluate a worker that steals because

of hunger or to buy medicines for his ill child, although stealing is, in theory, a reprobable fact.

Other difficult dilemmas are, for example, whether it is acceptable to betray a colleague in order to increase the productivity of the company, or if it is acceptable deceive others that do not have the whole truth or to hide them information in order to protect them. There are different solutions to the same situation and therefore it is necessary to make a personal deliberation, influenced by organization's or the society's deliberation. Here it is where ethic must be applied. (Gismera Tierno, 2003)

One of the aspects to be considered is the inadequate and abusive use of Internet within the company done by its employees.

1.3. Computer ethics:

There have been a lot of thinkers that have defined "Computer Ethics" after the first attempt done by Professor Norbert Wiener of MIT in the 1940's and early 1950's (Bynum & Rogerson, 2004). Nowadays thinkers are still attempting to define the nature and boundaries of the subject. One of the these definitions, done by Terrell Ward Bynum in 1989 (Bynum & Rogerson, 2004), says that "computer ethics identifies and analyzes the impacts of information technology on such social and human values such as health, wealth, work, opportunity, freedom, democracy, knowledge, privacy, security, self-fulfillment, etc.

The first need for ethics in computers emerged on how information must be handled. It can be processed in the wrong way, false information can be spread, important information can be withhold, etc. The way we use information can lead us to a lot of ethical conflicts. We have this special problem nowadays where Internet has changed our way to see and understand life, where a big amount of information is traveling all around the world.

We all have Internet at home and at work and this big advance in the communication field has put in one's reach a countless number of benefits. Among them we can stand out the possibility of communication between people located in different places by means of all kind of media; the possibility to send files, photos and videos; and the possibility to search for any information in the huge World Wide Web (W.W.W.). But it also has brought ethical and moral problems that are not easy to solve and not even recognizable.

Computer technology has transformed our point of view in many aspects of life: where and how we work, where and how we learn, our banking, commerce, medicine, nutrition, how we vote, spend free time, make war, make friends, make love.

"The information revolution is not 'merely technological'; it is fundamentally social and ethical." (Bynum & Rogerson, 2004)

As mentioned above we do not have the moral rules that help us in this society, with all the new things that Internet and computer technology has brought to our lives.

Information technology (IT) has brought ethical problems, but what is really worst is the suspicion that professionals may be unprepared to deal effectively with the ethical issues that arise in their workplace.

In our society it is not the search for answers that is needed but the development of certain skills for individuals and the need for methods that organizations can use to help them to cope with the ethical demands in working and business life.

It is necessary to acquire high ethical competence and confidence in handling all the ethical problems that may arise in everyday professional life.

It is needed:

- High ethical awareness,
- adaptive ethical problem-solving and decision-making abilities at individual and group level, and
- effective ethical argumentation skills. (Kavathatzopoulos, 1998)

1.4. Handling moral problems (Heteronomous and Autonomous reasoning):

People use different ways to handle moral problems. Psychological theory and research (Kohlberg, 1985; Piaget, 1932) differentiate between two different moral functions, heteronomy and autonomy, which decides a person's ability to handle moral problems.

The factors that characterize a person with a heteronomous way of thinking (Kavathatzopoulos & Rigas, 2006) are:

- The person accepts general moral principles (moral rules) without questioning them. Heteronomous thinking is an automatic reflex and heteronomous persons make uncontrolled decisions and react automatically to a moral problem.
- He/she accepts the general moral principle or the authorities, or both.
- He/she attempts to avoid responsibilities for the consequences and tries to place it on something external: the general principle, the counterpart, the authority, traditions, etc.
- In every heteronomous decision certainty, no doubt, is expressed.

In summary, a heteronomous person does not use functional problem-solving strategies, that is, critical thinking. (Kohlberg, 1985; Piaget, 1932)

On the other hand the factors that characterize a person with an autonomous way of thinking are (Kavathatzopoulos & Rigas, 2006):

- The person is constantly searching for different ways of action to solve problems and questions every value or interest relevant to it.
- He/she reconciles his/her own goals and feelings with the interests and feelings of the other part involved in the situation: organization, team, society, etc.
- He/she is responsible for his/her decisions.
- He/she doubts regarding to his/her decisions. In every autonomous decision uncertainty about what could happen is present. Probabilities against facts: “It may happen like this” against “This is the only way”.
- He/she does not use general moral principles in an indiscriminate way. It is not autonomous to apply moral principles in a categorical and general way. If a person decides to use a general moral principle he/she will make this principle his/her own, that means he/she will be responsible for his/her decisions.

In summary, an autonomous person considers and analyzes critically and systematically all relevant values in a moral problem situation.

When one is confronted with a challenging problem/situation, one can deal with it either in a heteronomous way, or in an autonomous way. What the use of the autonomous tool achieves is the blocking of heteronomous thinking by providing a structure for the exhaustive investigation of all relevant ethical aspects in the problem at hand. (Erlandsson and Kavathatzopoulos, 2005)

1.5. Ethical competence:

In psychological terms ethical competence is defined as a cognitive ability, described as autonomy.

What our society needs are people with ethical autonomy: an autonomous way of thinking and ethical competence.

Ethical competence implies having a number of skills at personal and organization level. The following abilities are a set of it (Kavathatzopoulos, 2003):

- A person may have decision-making and problem-solving skills: personal ability to handle and solve moral problems in an optimal way.

- A person – the decision maker - has a big ethical awareness in order to recognize ethical conflicts and also recognize them before they arise.
- The decision maker has to be aware of his/her own way of thinking and control the whole reasoning process.
- Ethical competence is also the ability to support ethical processes into the organization. All persons in an organization must be able to deal with moral conflicts individually and together.
- The decision maker also needs to have argumentation and communication skills, to motivate and defend one's decisions.
- And last, ethical confidence implies self-confidence to make difficult decisions.

Autonomous persons focus their attention on the concrete moral conflict situation instead of concentrating on the moral values or moral authorities.

The use of information and communication technology tools should be used to do special training and facilitate the achievement of ethical competence. Therefore, the significant factor in training is the way people think and not the solutions they give to ethical problems (Kavathatzopoulos, Persson & Åborg, 2004), so this is what training can achieve, the possibility to increase ethical skills.

Several researches have demonstrated that people can acquire skills to cope with moral problems, where the important factor is the participant's way of thinking, deciding and acting and not their solutions when they are confronted with real life moral problems (Kavathatzopoulos, 2004).

2. A WEB BASED QUESTIONNAIRE OF ETHICAL SKILLS

2.1. An educational technology tool

Information technology (IT), as defined by the *Information Technology Association of America (ITAA)*, is "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware." (Wikipedia's definition of Information Technology Association of America: ITAA) Recently it has become popular to broaden the term to Information and Communication Technology (ICT).

Information and communication technologies involve changes that reach all circles of human activities. Their effects are become clear in business activities and education in a special way.

The ability to search effectively for information using electronic resources is a necessary skill in the information age.

Nowadays there are several educational tools that, due to the fast and considerable technology advances growth, have been turned into technological educational tools in order to be used in a practical way for our current society. That is why, it also has been necessary to design this questionnaire as a technology one.

This project is based on the improvement of the possible shortcomings in previous similar questionnaires. For example there are doubts that four alternatives will capture the different ways of ethical function as well as the problem of symmetry and independence of moral content expressed in each alternative. Therefore this questionnaire has different numbers of alternatives that will try to improve those shortcomings.

2.2. Ethical Competence Questionnaire

In order to describe the level of ethical competence of a person a questionnaire has been developed. This questionnaire can also be used as a tool to describe the level of ethical competence before and after training.

This project is divided in two different and important parts.

The first of them is what is called “A web based questionnaire of ethical skills” because it is the web page that shows the questionnaire with the business moral problems, in order to be answered by as many businesspersons as possible so we can know their ethical skills in problem-solving. This part also can be called as the user application, because it is the one that users/participants will see and work with.

The second of them is the administrator part that carries out the control of the questionnaire. It is the administrator of the page the one that makes the important decisions: which and how much dilemmas must the questionnaire show? How many alternatives per dilemma should the questionnaire show? How does the questionnaire should be answered? That is why this part is so important. It can be called: the administrator application.

The user application consists of several steps. The first thing the user will find at the web page will be an introduction of the project that explains the main goal of it and also what will the user find in the web page.

After that and before starting answer the questionnaire the user must fill in a form with some background information for the statistical study, to figure out if these factors have some influence in the answers. The factors are:

A. Sex:

Man 1

Woman 2

B. Age:.....

C. Highest education:

Elementary 1

High school 2

University 3

PhD 4

D. Employment:

Government 2

Private 1

Own business 3

Other 4

E. Position:

Low 1

Middle 2

High 3

Other 4

F. How many years have you been a leader/manager?

0-1 1

1-5 2

5-10 3

> 10 4

I. How many ethical conflicts do you think you have at work?

Very seldom 1

Seldom 2

Often 3

Very often 4

J. How many ethical conflicts do you think you have in your private life?

Very seldom 1

Seldom 2

Often 3

Very often 4

After filling the form, the user will read the instructions of how to answer the questionnaire and can start to answer it.

There are three important reasons why this project is a technology tool. The first of it is because we are in a changing global world where technology has a very important role and where Internet is the best way of communication. That is why we have a web based questionnaire in order to reach a bigger amount of people. The second reason is that the questionnaire format can be changed more easily by the administrator. And the third and more important reason is to test the validity of different versions, depending on the different number of alternatives.

The administrator is the one that can change the questionnaire's format and decide the contents of it.

The administrator can add, edit or delete the dilemmas that will be shown in the questionnaire and in that way can add, edit, or delete the alternatives that will be shown per dilemma. He/she is also the one that can see the participant's background information and answers. (Administration User Guide: Annex 2)

The questionnaire will have different format depending on how many alternatives will be shown per dilemma. The administrator can choose if he/she wants the questionnaire to show two, four or eight alternatives per dilemma, and also the way he/she wants the questionnaire to be answered, by checking one, two, four, etc. alternatives per dilemma.

The reason why it is a technology tool is to have different versions of the questionnaire, depending on the administrator's decisions, and to make them in an easy way.

The web reference where the user part can be checked and the participants will use is: <http://www.javierly.com/mayte> and the web reference where the administration part can be checked is: <http://www.javierly.com/mayte/admin>

PART II: PRACTICAL FRAME

1. QUESTIONNAIRE DESCRIPTION

1.1. Dilemmas:

The questionnaire shows fifty moral dilemmas, although the administrator can add or delete more dilemmas into it. They are short stories about working life and business conflicts that every worker can be confronted with in its own job and find himself/herself in the difficult task to solve them.

We can find in business different kinds of moral problems, and for that reason our dilemmas also have different subjects/themes that cover most of the areas in business ethics.

After several interviews with businesspersons these are the areas that have been identified and that are also expressed in our dilemmas:

- Integrity
- Fraud
- Cover-up
- Discrimination
- Business security
- Promise keeping
- Blackmail
- Manipulation (handling)
- Environmental security (public relations)
- Privilege information (whistle blowing)
- Pornography

All the questionnaire's dilemmas are shown in Annex 1.

1.2. Alternatives:

Each dilemma is followed by a number of alternatives which expresses different aspects to be considered before solving the problem.

The issue of study is not on the solutions the participant gives to those moral problems, but how does he thinks, which facts he thinks are important to consider before any decision is made. The focus is on problem-solving and decision-making.

The questionnaire shows fifty dilemmas followed by two, four or eight alternatives, based on the administrator's decision. Even though the dilemmas are the same, we can say that there are three versions of the questionnaire: the two-alternative version, the four-alternative version and the eight-alternative version, according to the number of alternatives that follow each dilemma.

Each version of the questionnaire was designed to have half of their alternatives representing a heteronomous way of thinking and the other half representing an autonomous way of thinking. Therefore the two-alternative version has one heteronomous and one autonomous alternative, the four-alternative version has two heteronomous and two autonomous alternatives, and the eight-alternative version has four heteronomous and four autonomous alternatives.

The alternatives that are used in the four and eight-alternative versions are the same, so the administrator decides which alternatives to use in each case. However, the two-alternative version has its own set of alternatives. These are longer than the ones of the other versions, and express the heteronomous and autonomous ethical function in a small paragraph.

To find all the alternatives per each dilemma several interviews have been done to businesspersons and to students. After these interviews a detail and exhaustive study has been made to decide the best alternative's formulation.

We want to neutralize answers, we want them to be symmetrical, so the only difference between them is the way they are formulated, in order to have one alternative expressing the heteronomous way of thinking -called as one alternative of a pair- and the other one expressing the autonomous way of thinking – called as the other alternative of the pair. This means that the alternatives have been settled in pairs, and that each dilemma shows pairs of alternatives. The two-alternative version shows one pair of alternatives, the four-alternative version shows two pairs of alternatives and the eight-alternative version shows four pairs of alternatives, where each pair is composed of two alternatives that neutralized themselves. This is a very important fact to figure out the ethical skills of the participant in problem-solving.

The different dilemmas with its three version alternatives are shown in Annex 1.

1.3. Scoring:

The task of the participant is to place himself/herself in the position of the main character of the dilemma and mark which of the alternatives he/she consider to be the most important to take into account before solving the problem.

There are several ways to answer the questionnaire and this is also a decision of the administrator.

The two-alternative version questionnaire has only one way to be answered. The participant has to choose the alternative with the most important aspects to be considered before solving the problem by marking that choice with the number 1. For that reason the other alternative is considered the least important.

The four-alternative version questionnaire has three ways to be answered. The participant is asked to choose one alternative, two alternatives or all four alternatives. If the participant is asked only to choose one alternative, it must be the alternative with the most important aspects to be considered before solving the problem by marking that choice with the number 1. If the participant is asked to choose two alternatives, he/she has to choose the most important alternative by marking that choice with the number 1, and subsequently choose the second most important alternative by marking it with the number 2. And finally the participant can be asked to choose all the alternatives, by scoring them in order of importance with numbers 1, 2, 3, and 4 respectively.

The eight-alternative version questionnaire has four ways to be answered. The participant is asked to choose one alternative, two alternatives, four alternatives or all eight alternatives. If the participant is asked only to choose one alternative, it must be the alternative with the most important aspects to be considered before solving the problem by marking that choice with the number 1. If the participant is asked to choose two alternatives, he/she has to choose the most important alternative by marking that choice with the number 1, and subsequently choose the second most important alternative by marking it with the number 2. If the participant is asked to choose four alternatives, he/she has to choose the most important alternative by marking that choice with the number 1, and subsequently choose the second most important alternative by marking it with the number 2, the third most important alternative by marking it with the number 3 and the fourth most important alternative by marking it with the number 4. And finally the participant can be asked to choose all the alternatives, by scoring them in order of importance with numbers 1, 2, 3, 4, 5, 6, 7 and 8 respectively.

Having half of the alternatives per dilemma representing the heteronomous way of thinking and the other half representing the autonomous way of thinking was made to give the participant the possibility to choose among them independently of the preferred decision to solve the dilemma in this or that way. The issue of the study is how participants think and not the way they solve those problems. The important fact is the process of making a decision and not the specific decision.

The choosing and scoring of the most important alternatives, depending on the version of the questionnaire, indicates if the participant uses competent ways to handle those problems, the participant's degree of ethical competence.

2. DESIGN OF USER INTERFACE: USABILITY STUDY

Every time an application or web site is designed usability must be measured.

“Usability is a term used to denote the ease with which people can employ a particular tool or other human-made object in order to achieve a particular goal. Usability can also refer to the methods of measuring usability and the study of the principles behind an object’s perceived efficiency or elegance. In human-computer interaction and computer science, usability usually refers to the elegance and clarity with which the interaction with a computer program or a web site is designed.” (Wikipedia’s definition of Usability)

The primary notion of usability is that an application or object must be designed keeping users’ psychology and their needs and goals in mind, what it is called user-oriented. The application has to be efficient to use – it takes less time to accomplish a particular task - , easier to learn – operation can be learned by observing the object –, and more satisfying to use, what makes it user friendly. The term user friendly is often used as a synonym for usable, though it may also refer to accessibility.

Usability study consists of three steps: a) analysis of the design problem, b) design of the system, and c) evaluation of usability.

The system that has to be designed consists in two different applications: the first one is the one that contains the questionnaire itself, the one that participants will see and work with – it can be called “User Application”- ; and the second one and also very important is the one that the administrator will work with, where he/she decides how the questionnaire will look like, and how it has to be answered – it can be called “Administrator Application”.

Therefore, the usability study will be done for both applications separately.

2.1. User application

2.1.1. Analysis of a Design Problem

The design problem is a *Web Based Questionnaire of Ethical Skills* that supports a questionnaire on Internet that figures out the ethical competence in business life of the participants, and help them in training that skill.

To do the design of this application we have to consider all points of view, and the user needs. We have to understand that, as developers, we are not the users of the system and we have to study real users. We need to consider some information:

1. What types of users are involved in the application?

In any application there are different users involved, some of them are obvious and others are harder to identify. I am going to point out all the users involved in this system:

Participants: the users that will use this system to answer the questionnaire and train themselves on ethical skills.

Administrator: The user that will decide how the questionnaire should be, which and how many dilemmas will be shown, which and how many alternatives will be shown per dilemma and how to answer the questionnaire. This user is the one interested in built this instrument that measures ethical competence in business as a psychological problem-solving and decision-making skill, and that will make a study with the answers of the participants about ethical competence in businesspeople nowadays.

2. Where would the users want to place the application?

This instrument is a technological tool that is going to be on Internet because we live in a world with great advantages in the Information and Communication Technology (I.C.T.) and we want to have all its benefits. Their memory storage capacity is enormous and it let us save the answers of a big amount of participants, as well as it can reach more people and facilitates the treatment of gathered data.

Nowadays we have access to internet from many displays, laptops, computers, mobile phones, etc. and this system would be very used from all of them.

3. What types of users would be interested in such a service?

Everyone in this society has to cope with ethical conflicts in business as well as in private life, and they will want to have a high ethical competence in order to solve them easily. This application is focused on business moral conflicts, so businesspeople will specially be interested in this application.

Kinds would not be interested in this application because they are not yet aware of our modern society's conflicts. On the other hands, young people, as university students, can be interested on it because they are starting to be aware of the moral dilemmas that arise and also the consequences of make a wrong decision.

Adults – every worker - would be the most interested ones as is mentioned above. One limitation in the case of older people that are not used to computers is the lack of experience in technology. That is why this application shall be as easy as possible to understand and use.

2.1.1.1. OLE Analysis

We must take into account the ethical usability of the QES (Questionnaire of Ethical Skills), for instance the impact on society, the environment, people, etc. OLE (Kavathatzopoulos, 2007) is a systematic analysis of the relevant values and the interests of different groups in society that will help in this study.

The OLE questionnaire contains the following parts:

- Organization, business, cooperation and coordination
- Training, learning and skills development
- Ethics, internal relations and relations to society at large

Organisation, business, cooperation and coordination

1. *What concrete measures will you take in order to involve the real users in the design and construction of the QES?*

The most important thing for make a good design is to know exactly which the users' goals are, and for that reason we have, as developers, to ask the users about their needs.

There could be a lot of methods, for instance study, surveys, interviews and more or less 'live with' the users in their workplaces, but the "interview" method will be taken. It is the easy way, and gives you good part of the information that you need to know.

2. *What will you do in order to facilitate the cooperation between the users and the developers – in order to make it successful?*

To have a good cooperation between user and developer, it is necessary to set a meeting for the interview, so they can talk about the design. It is important not to interfere in the schedule of the user, so the user will decide the hour and the place of the meeting.

It is good to have relevant questions, and not a high number of them, so the user can not get tired or bored.

3. *What will you do to make sure that the QES really improves the work situation, actions or behaviour of the users?*

In an application like a web questionnaire, the users want an easy way of answer. In order to make sure these needs, the system must be understandable and fast.

The behaviour of the participants can change if the application is not as easy as they expect.

4. *If the QES will be used in an organisation, what will you do to make sure that it supports the users' being in control of their work situation, i.e. their independence, responsibility and competence?*

This question is not applicable on our design problem because users will always be independence of their work situation, as is not going to affect in their responsibility and competence inside their works, as long as they do not answer the questionnaire in working times. Or may be the organization obliges their workers to answer the questionnaire, so that will mean that they are doing their duty.

5. *What will you do to make sure that the QES will improve the cooperation between the user and other people involved in mutually depending work tasks?*

A participant's work tasks will not be depending on anything while they are answering the questionnaire. On the other hand, if they train themselves with the questionnaire and acquire a higher ethical competence as a psychological problem-solving and decision-making skill, this skill will help the user to have better decisions at work and will benefit his/her colleagues and his/her company.

6. *If the QES will be used in an organisation, what will you do to make sure that it will fit and support the formal hierarchy and structure of the organisation?*

As is it mentioned in question five, when a worker has achieved a higher ethical competence in business as a psychological problem-solving and decision-making skill, this skill will be very useful within the company, what may restructure the hierarchy and structure of the organization in order to have people with a high ethical competence at higher levels of organizational hierarchy, because they can solve moral conflicts in a better way, and also anticipate ethical conflicts before they arise.

7. *What will you do to make sure that the QES will reduce the mental and physical workload of the user?*

As it is mentioned before, the participants need an easy and fast system, so they will not be frustrated for the time they are "wasting" while answering the questionnaire or because they do not understand what they have to do.

8. *What processes and work practices (organisational and technical) will you create for dealing with problems in the use of the QES?*

There will be an administrator that makes sure that the website is continuously working, and at the correct velocity.

Training, learning and skills development

9. *What will you do to make sure that the users will have a positive attitude to the QES?*

To make sure that the users will have a positive attitude to the application it must be very easy. One of the important things that the users want is an easy way to deal with the system consequently the website must be clear and easy.

10. *What will you do to make sure that the users will get the knowledge and skills required for efficient use of the QES?*

First of all, the system must be very clear so the user will know exactly what he/she has to do. The system will have warning messages in order to help users to answer it. Finally, the administrator of the website will make sure that everything is working correctly.

11. *What will you do to make sure that the users will get the knowledge and skills required for dealing with situations and problems that may arise in the use of the QES regarding for instance, coordination or conflicts between users, relations to other people or groups involved, etc?*

In this kind of application, the users will not be in conflict with other users. The problems that could appear during the use of the system are very well explain in warning message letting know the user what to do.

12. *What will you do to make sure that the users get appropriate and adequate introductory training?*

The application is very easy, and it is clear what the user should do in every step. For instance, the website only has one button in every webpage so the user can only do one thing at a time. And warning messages will appear if the user do not answer correctly and will let him/her know how to answer.

13. *What will you do to make sure that the users will have sufficient time to practice using the QES, on their own or together with other users, when the system has been installed?*

A user can use the application with the help of other users anytime. But the application will not be difficult, so the user will not need to practice before using it to handle it, and the website will give you the opportunity to mend your way on every step you do.

Anyway, if the user wants to see how the questionnaire works he/she always can do it, and leave the website anytime he/she wants, because the website will only save the answers in the data base when the questionnaire is completely finish.

14. *What will you do to make sure that the users can adjust and modify the QES when they need to?*

The interface of the application will not be changed by the users but by the administrator.

15. *What will you do to make sure that the QES provides the users with opportunities for continuous training and for testing and experimenting with the system on their own?*

The company or organization that has designed the system will improve it many times since the technology develop fast. Besides, the changes on the website will be visible any time there are changes.

16. *If the QES will be used in an organisation, what will you do to make sure that the organisation allows and encourages informal knowledge support, i.e. that they can ask one another for help and help one another with solving problems?*

This application will not really be part of an organization, but with the results of worker's training of ethical skills the organization will be rewarded with skilful businesspeople.

17. *What will you do to make sure that the online help and user documentation provide appropriate and adequate support?*

This application must be clear and easy to understand, and the warning messages will help the participants in their way thought the website.

18. *What will you do to make sure that there is appropriate technical support easily available to the users – either experts, other users or colleagues?*

The administrator is the one that makes sure the website is continuously working, and in the correct velocity.

Ethics, internal relations and relations to society at large

19. *Will there be any ethical problems or conflicts in the organisation where the QES will be used?*

As this application is not a specific application for an organization, there is not going to be ethical problems within organizations.

20. *Will the QES cause any ethical problems or conflicts?*

The only ethical conflict that can arise when a participant answer the questionnaire is if he/she answers randomly, without thinking in the answers, because all that information will be storage in the data base and those answers will not be helpful to figure out the ethical competence of this user.

Anyway, we hope that participants that will answer the questionnaire are aware of the importance of it, and will do it as better as possible.

On the other hand, for ethical integrity the application must have a good explanation of the questionnaire, of the goals of it, and also why do we need some background information of the user.

21. *What groups, individuals, organisations, etc, will in any way be affected by or have a stake in the development, use or mere existence of the QES? (Including society at large and the environment.)*

This application will help not only the individual, but the company where he/she works and the society itself, because what our society needs is people with ethical competence in business as well as in private life.

22. *What values, interests, duties, standpoints and attitudes are involved in the use of the QES?*

As it is mentioned above, the insertion of this kind of application is made to bring benefits in the first place to the participants, then to the organizations where these participants work, and finally to the whole society, because what we try to figure out

with this instrument is the ethical competence of businesspeople and train their ethical skills in order to give them a better knowledge of how to solve a moral conflict and even to anticipate moral conflicts before they arise.

23. *What effects will the QES have on each of these values, etc? Will the QES fit certain values and conflict with others? What values and how?*

For ethical integrity the application must have a good explanation of the questionnaire, of its goals, and also why do we need some background – but not personal - information of the user, and that all information will be confidential.

24. *What will you do to make sure that the use of the QES will be optimal with regards to ethical aspects? For instance, adapt the design of the product, user training, organisational changes, inform stakeholders, etc? How exactly are you going to succeed with this?*

The application will be easy to understand, it will have well explained the goals of the website, the instructions of the questionnaire, and warning messages will appear if the user needs them.

2.1.1.2. User Analysis

The purpose of the user analysis should answer questions about who the users are and what goals they have, and categorize them according to background, personal conditions, work tasks and requirements for the user interface.

For the user analysis we can use, for instance, categories or *personas*.

For this system, it is better to use categories instead of *personas*. A *persona* is a model of a user that focuses in individual's goals when using an application. According to Coopers' definition of *persona*: "a precise description of our user and what he wishes to accomplish", the system must be design for a specific group of people, that have all the same goals.

That is why, Coopers' *personas* (Blomkvist) is a method that could be used in other kind of application, for instance a system for a specific organization like a bank where probably all the users will have the same goals, and will be easy to create a model of the user.

This system will be used by a big range of different businesspersons, each one with different interests. That is why it is difficult to make a model of a user of this system, and *categories* (Benyon, Turner & Turner, 2005) will be used.

Knowledge about the users could be found from different resources: surveys, interviews, observation of users in their natural context. Interviews are the easy way to do it, and it gave you most of the important information.

In the user analysis there are a lot of characteristics which are important to examine:

Users' goals of using the system:

- Answer the questionnaire in an easy way.
- Save time: avoid answering a paper - questionnaire and send it by normal mail.
- Avoid movement: nowadays everyone has Internet at home or/and at work.

Users' tasks:

- Answer the questionnaire (main task).
- Fill the form with background information.

Composition of the user group:

- The age of the users can vary in a big range, from young to old businesspeople.
- There are a lot a user profiles. The most common are divided by age: young, adults and older people.
- The questionnaire should be answered only by one person.

Cognitive and physical conditions and limitations:

- Some users have disabilities such as visual and hearing impairment, colour blindness.

Education and experience:

- The system will be written in English language, as is one of the languages more used and know in our society.
- Some users could have a lot of experience with systems like this (interaction with different applications, computers, etc.) or could be beginners. Old people could not have experience.

Aids and tools available:

- Graphical symbols.
- Warning messages.

The usage of the system:

- It is not mandatory to use.
- A web questionnaire will provide the user the possibility to be answered every time he/she wants.

Organization:

- The user may fill first a form with background information.
- To make the questionnaire easy to be answered, it is divided in different websites, only showing one dilemmas each time, so the user can concentrate on answering one at a time.

Environment:

- The environment of the system is indoors, if we are talking about computers. But users can also reach Internet from many displays, laptops, mobile phones, etc.

Example of user profiles:

	Young	Adults	Older
Age	18-30	30-60	60-80
Gender	Male/female	Male/female	Most females
Computer experience	Large	Medium-large	Short
Internet habits	Large	Medium-large	Short
Ethic abilities	Short	Short-medium	Large
Limitations	Short	Short-medium	Large

2.1.1.3. Task Analysis

The Task Analysis (Hackos & Redish, 1998) should answer questions about the user's tasks and how these are carried out.

Tasks are a concept in understanding the users and what they are doing.

There are different methods for task analysis. The most common methods are structured interviews and observation interviews.

The questions that the task analysis should give answers about are:

1. Goal. Why is the user carrying out a specific task?

The main user's goal is answer the questionnaire, and for doing it they need to carry out a set of sub-tasks, for instance fill a form with background information and answer the questionnaire itself.

2. Subtasks. What steps or operations have to be done in order to carry out the task?

The system has several sub-tasks to complete the questionnaire.

First, the user has to find the website in Internet corresponding to the web based questionnaire, writing the U.R.L. in a navigator.

Second, the user reads the introduction with the goal of the website and fills the form with the background information required.

And finally, the user reads the instructions of how to answer the questionnaire and answers the questionnaire, by answering one dilemma each time and then go on to the next one. And he/she will repeat this step a certain number of times, as long as many dilemmas are shown.

These sub-tasks are better explained in the Hierarchical Task Analysis below.

3. *Frequency and time. How often is the task been carried out? How long time does it take to perform the task?*

This kind of system could be used every time the user wants. The questionnaire will be as long as the administrator wants it to be, depending on the number of dilemmas that he/she decides to show. Anyway this questionnaire is trying to figure out the ethical competence of the participants, and to do so the user should think carefully each dilemma, so it will take some time, depending on the user's ethical competence.

4. *Environment/context. Where is the task carried out? In what context is the system being used?*

This system does not need a specific context because is not part of an organization. We can find this system in Internet, so every user has access to it from many displays, computers, mobile phone, etc.

5. *Organization. Are the users cooperating with others?*

As I said before, this system is not part of an organization, so it does not need the cooperation between users, actually each user should answer the questionnaire by oneself.

6. *What technical aids are necessary to perform the task; tools, computer applications, networks, phones, paper forms, etc?*

This system (web based questionnaire) will need a computer or other display with internet network.

7. *Are there critical steps or 'bottlenecks' in the work procedures that makes the task more difficult?*

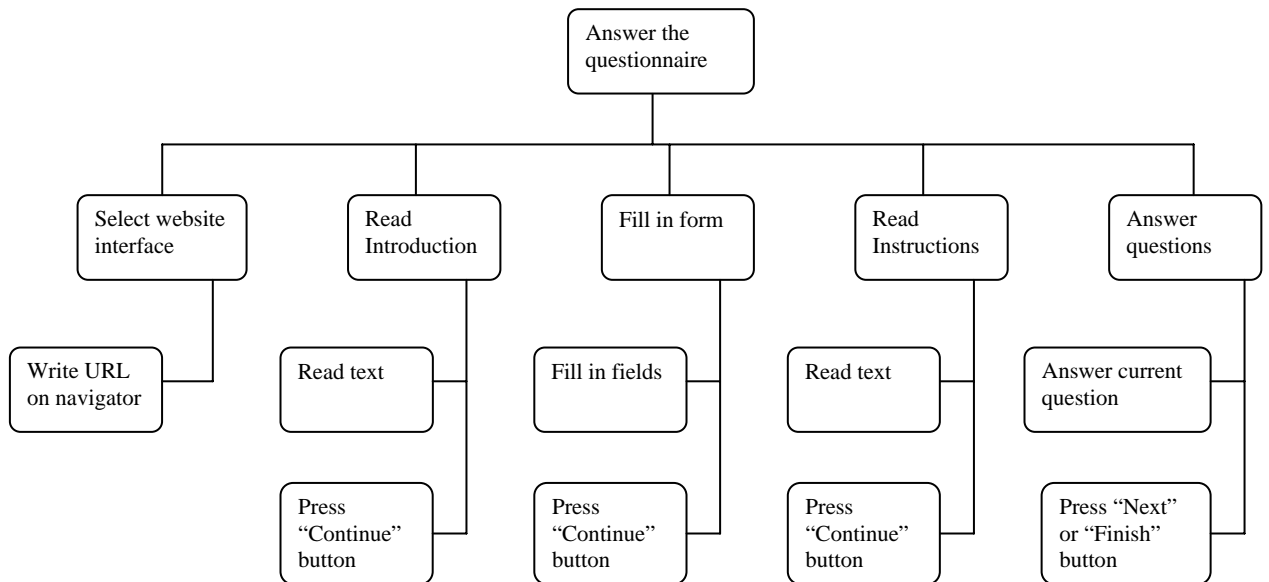
This QES is a website, so the problem that a user could find will be the network's velocity. Internet would slow some times but the system must try to avoid this kind of problem.

In order to develop a usable system, it's essential to do a detailed task analysis. With that analysis, it is possible to describe what tasks or functions the new systems have to support.

The task analysis has been done using the Hierarchical Task Analysis (HTA), where tasks are divided into less complex subtasks, and finally reach a more or less atomic operation, such as pressing a button.

The purpose of hierarchical task analysis is to describe the users' tasks structured in a hierarchy of goals, tasks, operations and plans.

The next figure describes the hierarchy of our system according to the HTA:



The explanation of the figure is the following:

Main task: Answer the questionnaire.

Sub – tasks:

1. Select the website interface:
 - 1.1 Write the U.R.L. of the website on any navigator.
2. Read the introduction:
 - 2.1 Read the introduction with the explanation and goals of the website.
 - 2.2 Press the “Continue” button.
3. Fill in form:

- 3.1 Fill in the form with background information of the participant.
 - 3.2 Press the “Continue” button.
4. Read the instructions:
- 4.1 Read the instructions of how to answer the questionnaire.
 - 4.2 Press the “Continue” button.
5. Answer the questions (dilemmas):
- 5.1 Answer each question (dilemma) from the questionnaire. Until the participant does not answer the current question, he/she can not be able to go to the next one. Warning messages will appear to help the user how to answer.
 - 5.2 Press the “Next” button to go on to the next question (dilemma). If it is the last question the user should press the “Finish” button.

2.1.2. Design of the System

A Graphical User Interface, G.U.I. (Benyon, Turner & Turner, 2005), is a type of user interface that helps the interaction between the user and the system through metaphors of graphical images in addition to text. In this system the GUI will be a website that consists of texts, buttons, images, and all the widgets that websites use to make an application available and easy to understand for the user.

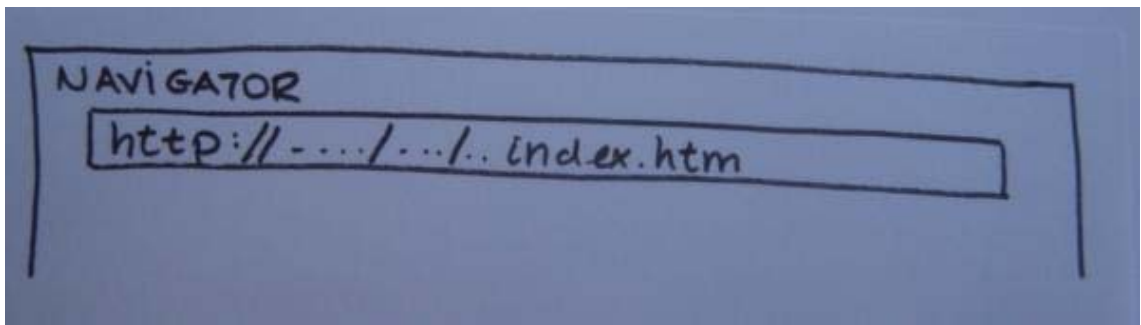
The principal goal of this system is to let participants answer a questionnaire that measures ethical competence in business. One way to do that is using metaphors. Metaphors give us a simple way to understand what we have to do in each moment, because we use icons that represent the same thing that in real life. Having real-world metaphors for objects and actions can make it easier for users to learn and use an interface, which is more intuitive.

2.1.2.1. Storyboard of the system

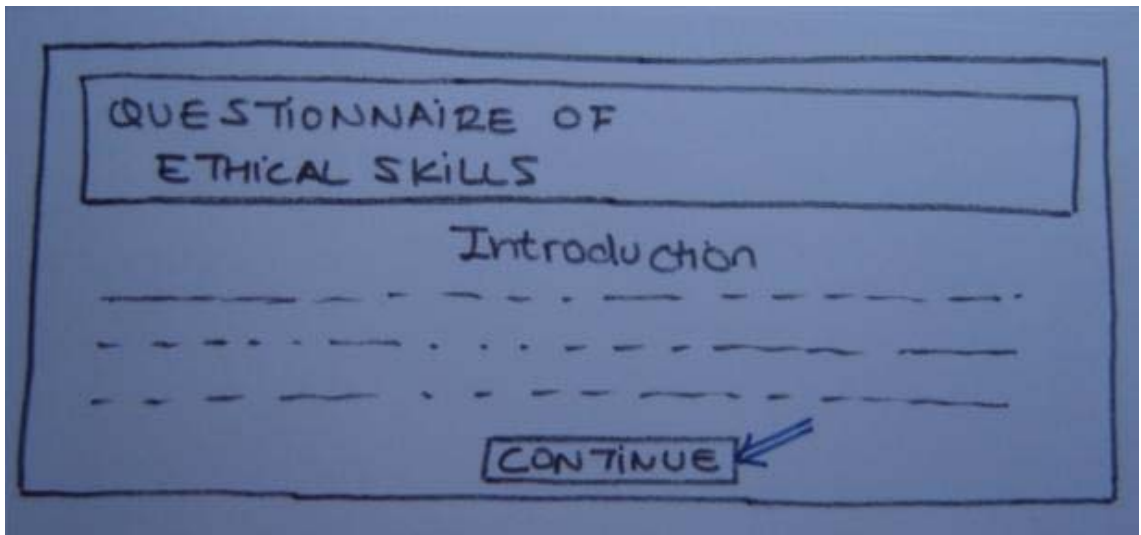
All the steps that the user must do to complete the task of answering the questionnaire are explained below. Sketches of the system in every step are been used, and an arrow on the button that the user has to press in each step is been drawn.

An example of user could be a 30 years old man.

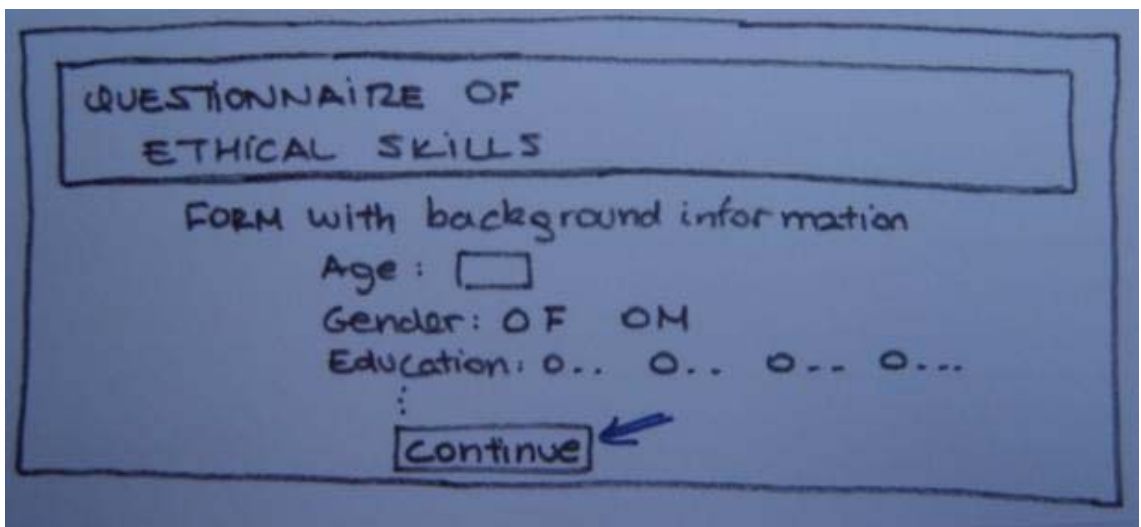
1. Select the website by writing the U.R.L. on a navigator.



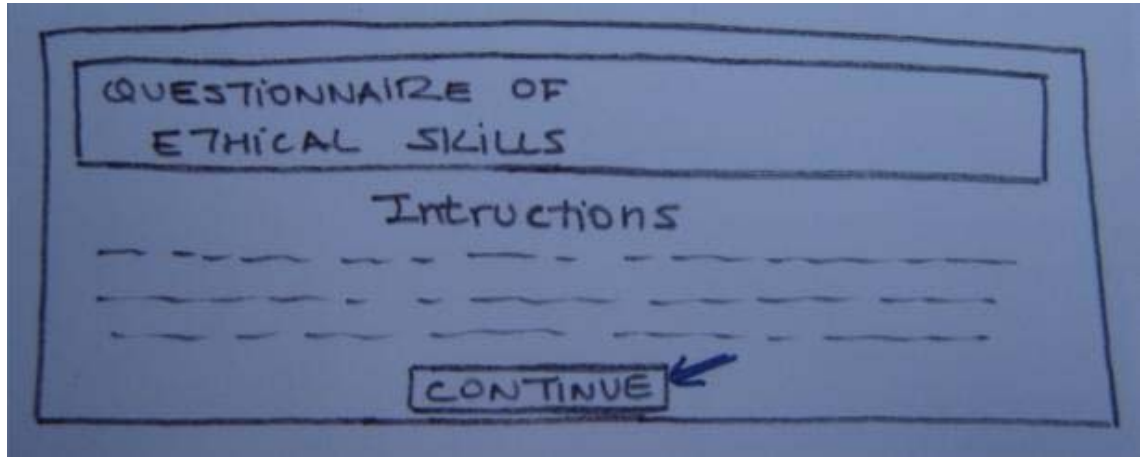
2. The main page showing the introduction will be shown on the navigator. After the user has read the introduction with the explanation, main ideas and goals, of the website, the user press the button "Continue"



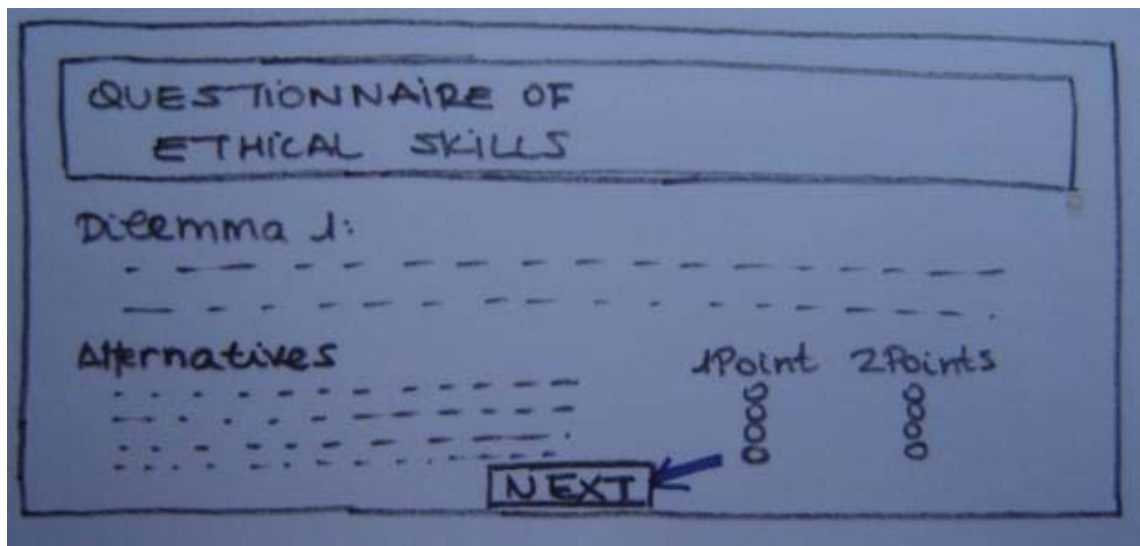
3. The user fills in all the background information of the form required and presses the "Continue" button.



4. He reads the instructions of the questionnaire to know how it must be answered and presses the “Continue” button.



5. The user will see the first dilemma and answers it as the instructions have said. After answering the dilemma he/she presses the “Next” button. The user will repeat this step as many times as numbers of dilemmas the questionnaire has. When he/she reaches the last dilemmas, instead of pressing the “Next” button, he/she presses the “Finish button”, and the questionnaire will be finished showing a good-bye message.



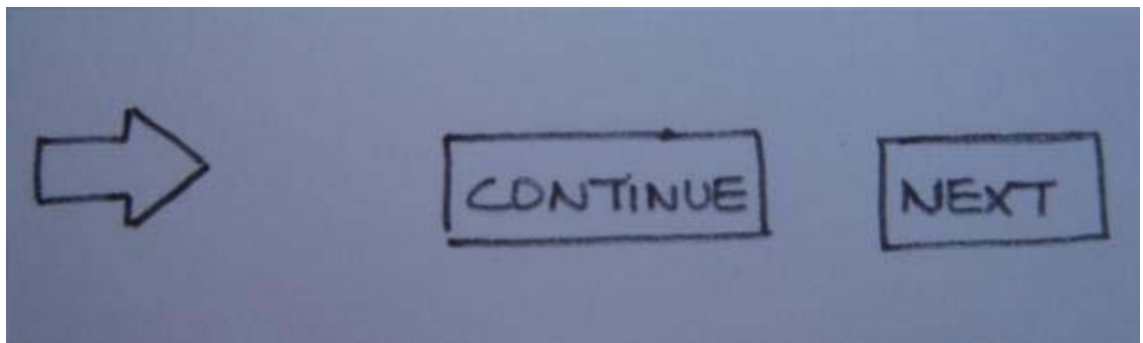
2.1.2.2. Design of a prototype

As it is explained in the introduction the design will have a lot of metaphors that gives an easy way to understand and use the system. (Lorés, Gimero, Joan & Pédrrix, 2001) The

metaphors could be graphical or verbal. The graphical metaphors are very easy to understand by the user, but sometimes it is difficult to express an action in a graphical way so we use verbal metaphors.

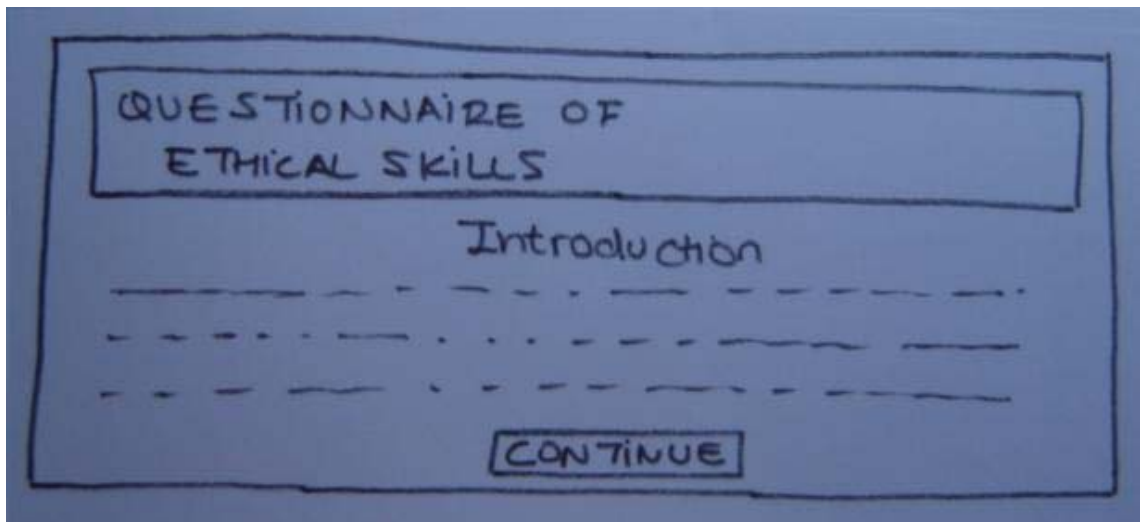
For example, in this application a metaphor could be an arrow when we want the user to go on to the next page, but a button with a word on it is a better way to understand what the user should do, so to make the website really easy to understand buttons with text on them are being used.

Sketches of these examples are shown in the next figure:



As this website is a very simple one and the main task is to answer a questionnaire, it will only have a little section on the top that shows the title of the page and one big section where all the information will appear. In this big section is where the introduction, form, instructions and questions of the questionnaire will appear.

A prototype sketch of the homepage could be:



2.1.2.3. QOC documentation

The documentation of this design will be done by the QOC (Questions, Options and Criteria) Method (Preece, 1994). With a good documentation the evaluation part would be easy later on.

It is difficult to document all decisions making for a system because they are a lot of them, but here they are presented the most important ones.

To make this documentation the HTA figure of the Task Analysis will be followed and all the possible questions for the design will be answered.

To represent each QOC the list method will be used. Q is the question, O1 is the first option, O2 is the second option, C1 means that is criteria for the first option, and C2 for the second option. The C1,2 means that the option number 1 and 2 has the same criteria.

Q: To go through the pages of the website, which widget can we use?

O1: "Continue" Button

O2: A forward arrow image.

C1: Easy to understand.

C1: Easy to learn.

C1,2: Both of them occupy little space on the screen.

C1,2: Simple to implement.

As both have the same advantages but the first one is even easier to understand, the website will have buttons with text on them.

Q: How will the form be filled in?

O1: By text areas: users write all the information required.

O2: By radio-buttons: users check one of the possibilities shown.

C1: The user can write what ever they want.

C2: Easy to fill in.

C2: Easy to understand.

The form will have radio-buttons to make it easy for the user, because may be the user will not know what to write and with radio-buttons he/she will see all the possible alternatives, and it is easy and fast for the user to check a box than to write some text.

Q: How many questions (dilemmas) will the questionnaire show in each web page?

O1: One by one.

O2: In groups of a number of dilemmas (for examples, groups of 2 or 3).

O3: All shown in the same page, follow one another.

C1: The user will pay attention only to one dilemma at the time.

C1: The user will not need to scrollbar the screen.

C2: The users will not press the “Next” buttons so many times.

C3: The users will press only the “Finish” button.

It will be better for the user and his/her concentration to have only one dilemma at a time so he/she can focus only on one dilemma and the questionnaire will be better answered. And users do not like to scrollbar the screen.

2.1.3. Usability Evaluation

Evaluation is a necessary part of all phases of a development project. Evaluation must be made several times in order to obtain a basis for further development, improvements, etc.

Evaluations can be made at different points of time, during the development process and evaluations of existing, complete systems.

There are generally three types of usability evaluation methods: Testing, Inspection, and Inquiry. (Usability Evaluation, www.usabilityhome.com)

Usability inspection is the generic name for a set of methods that are all based on having evaluators inspecting a user interface.

Heuristic evaluation is the most popular of the usability inspection methods for quick, cheap, and easy evaluation of a user interface design.

2.1.3.1. Heuristic Evaluation

The goal of heuristic evaluation is to find the usability problems in the design so that they can be attended to as part of an iterative design process. (Nielsen’s online writings on Heuristic Evaluation, www.useit.com/papers/heuristic)

There are ten heuristics for user interface design proposed by Jakob Nielsen (Nielsen, 1993) and those heuristics are going to be used to do the evaluation.

1. Visibility of system status

The application has an “Introduction” section where the user can find all different information about the website and about the ideas and goals of the realization of itself.

The form must be filled in completely, and if the user forgets to fill in some field, warning messages appear to indicate it.

It has an “Instructions” section where is well explained how to answer the questionnaire. Warning messages are good feedback for the user to indicate that he/she is doing something wrong, and how to solve the problem.

2. Match between system and the real world

One relevant thing is that the website is in English, fact that makes the website more general and reachable.

The system has familiar expressions, so the user can understand easily everything that it is tell in the website. Also, instead of only icons or images, the website has button with text, so users can understand better what to do next.

3. User control and freedom

The website has different steps that make it easy to use, and show users the next step they have to take. Warning messages are shown in the form as well as while answering the questionnaire that tells the user that has made an error and how to solve it easily, indicating exactly what he/she has to do.

4. Consistency and standards

The website is consistent and uses the same expressions and words for the same thing, without changing them all the time. The user can understand the site easily.

5. Error prevention

This is an easy website where you can not make many errors. If the user reads carefully the instructions there is no reason why an error has to occur.

One possibly error could be when a user forgets to fill in some field of the form but, in this case, warning messages appear just after the field, telling the user what they have forgot to fill in. This means that the form is validated before is sent, and what it is also good of this validation is that if the user has not fill in a field, the form appears again not only with the warning message, but also with all the rest of the fields fill in with all the answers the user has filled before, so he/she has not to fill in all the form again. It is the best way of finish this step as fast as possible.

Another possible error, is to answer wrong some question (dilemma) from the questionnaire, this means not to answer the current question or answer it wrongly. In this case another warning message appears to let the user know that something went wrong, and also how to answer the question.

To do the website very easy to everyone, the user can not continue to the next step until he has not finished correctly the current one.

6. Recognition rather than recall

The website is simple and the user would not have big problems to make actions and remember them. The instructions of how to answer the questionnaire is just before the questionnaire appears, and not at the beginning, so the user does not the possibility to forget how to answer will he/she is filling in the form with his/her background information. And also the warning messages let the user remember how to answer.

7. Flexibility and efficiency of use

This system is a very simple one, and there is no different of use between experts and novice users, that is why the steps that the user must follow are the same in both cases. Of course, users with Internet experience help to use it faster and make fewer errors.

8. Aesthetic and minimalist design

This page features a minimalist design. It only has the relevant information visible in each page, the important things the user must know and do in every step.

9. Help users recognize, diagnose, and recover from errors

As it is mentioned before, this system has different constructively warning messages, and they tell the user what to do and how to solve the problem.

10. Help and documentation

The website is easy and it really does not need documentation. It is easy to learn how to use it, because the tasks are simple and the user can not go on until the current task is done correctly. In the "Introduction" section the user can read the purpose of the website and in the "Instruction" section it is well explain how to answer the questionnaire.

2.1.3.2. User Testing

Another important part of the evaluation, even the most important, is the user testing, where we can find out how difficult the system is to real users. For user testing, one wants to discover the mistakes users make when using the interface.

The good thing is that, in this case, we have the real website (<http://www.javierly.com/mayte>) to do the user-testing, instead of make the user guess about how the website would be.

“Some people think that usability is very costly and complex and that user tests should be reserved for the rare web design project with a huge budget and a lavish time schedule. Not true. Elaborate usability tests are a waste of resources. The best results come from testing no more than 5 users and running as many small tests as you can afford. ... After the fifth user, you are wasting your time by observing the same findings repeatedly but not learning much new.” (Nielsen’s Alertbox, 2000)

Therefore the user testing was done by five users with different skills in Internet, three of them familiarize with internet and two as novice users.

In a user test situation, the experimenter has the responsibility of interpreting the user's actions in order to infer how these actions are related to the usability issues in the design of the interface. This makes it possible to conduct user testing even if the users do not know anything about user interface design. The experimenters are reluctant to provide more help than absolutely necessary. Also, users are requested to discover the answers to their questions by using the system rather than by having them answered by the experimenter. (Nielsen)

Therefore, for doing the user testing I have been the experimenter and I have followed these steps per user:

- Make an appointment with the user.
- Ask the user to make a certain task, in this case, answer the questionnaire.
- Observe the user while he/she was using the system.
- After every test ask the user about the difficulty of the system.

After doing the user testing with the five users I have redesigned the system in order to fix the usability problems observed.

There has not been done only one test per user but multiple tests, because the real goal of usability engineering is to improve the design and not just to document its weaknesses.

There have been done three tests per user along the process of design. After finding with the first test most of the usability problems these problems have been fixed in a redesign. After creating a new design I needed to test again. A second test discovers whether the fixes worked or whether they did not. Also, in introducing a new design, there is always the risk of introducing a new usability problem, even if the old one did get fixed. After the second test was done another redesign was necessary and also a third test. The website shows the design’s result after the third test.

As the website of the user application is an easy one and has not so many steps to follow by the user, the tests were not long and I did not have to make big changes in the original design.

After the user testing the main change was to have in every webpage a different user's task: read the introduction, fill in the form, read the questionnaire's instructions and answer the questionnaire. It also has been changed a little bit the form's format.

2.2 Administrator application

2.2.1. Analysis of the Design Problem

The design problem is the *Administrator Application of the Web Based Questionnaire of Ethical Skills* that helps the administrator to decide how the questionnaire will look like, how many dilemmas should it shown and how many alternatives will be shown per dilemma, and how it has to be answered.

As it has been done in the design problem of the User Application to do the design of this application we have to consider all points of view and study real users. We need to consider some information:

1. What types of users are involved in the application?

Mainly people who want to assess ethical competence in different groups and map ethical needs, such as ethicists, ethical officers in organizations, managers, social scientists, etc. The user will be the administrator of the questionnaire website, who will decide how the questionnaire should be, which and how many dilemmas will be shown, which and how many alternatives will be shown per dilemma and how the questionnaire should be answered.

2. Where would the users want to place the application?

This application will also be on Internet, to do well out of the advantages of Information and Communication Technology (I.C.T.). Their memory storage capacity is enormous and it let us save all the dilemmas and its alternatives as well as all the answers of a big amount of participants.

3. What types of users would be interested in such a service?

A user with abilities in computers and Internet will be interested in this application, because he/she will be the administrator of a website. Although an administrator does not have a lack of experience in technology, the application shall be

as easy as possible to understand and use, so even if a user is not so experienced he/she can use this application easily.

2.2.1.1. OLE Analysis

Organisation, business, cooperation and coordination

1. *What concrete measures will you take in order to involve the real users in the design and construction of the QES?*

The “interview” method will be taken because it is the easy way, and gives you good part of the information that you need to know.

2. *What will you do in order to facilitate the cooperation between the users and the developers – in order to make it successful?*

As it is mentioned in the OLE Analysis of the User Application, interviews with different users will be done to have a good cooperation between user and developer, where the topic will be the design of the application.

3. *What will you do to make sure that the QES really improves the work situation, actions or behaviour of the users?*

In order to make an easy application, the system must be understandable and fast. The behaviour of the user can change if the application is not as easy as they expect.

4. *If the QES will be used in an organisation, what will you do to make sure that it supports the users’ being in control of their work situation, i.e. their independence, responsibility and competence?*

As this application is done to control a website (where the questionnaire is shown) this will be the job for the administrator and it will be his/her duty. In order to make his/her work easy the application must be easy, understandable and fast.

5. *What will you do to make sure that the QES will improve the cooperation between the user and other people involved in mutually depending work tasks?*

Normally this application will be controlled only by one user – the administrator -, but if there are a group of administrators that are in charge of the application there is nothing on it that obstruct the cooperation between them.

6. *If the QES will be used in an organisation, what will you do to make sure that it will fit and support the formal hierarchy and structure of the organisation?*

This application will not change the hierarchy and structure of the organization that design and implement it, because it will be duty only for the administrator.

7. *What will you do to make sure that the QES will reduce the mental and physical workload of the user?*

As it is mentioned before, the user needs an easy, understandable and fast system, so he/she will not be frustrated for the time he/she is wasting or because he/she does not understand what should be done.

8. *What processes and work practices (organisational and technical) will you create for dealing with problems in the use of the QES?*

The administrator makes sure that the website is continuously working, and at the correct velocity.

Training, learning and skills development

9. *What will you do to make sure that the users will have a positive attitude to the QES?*

One of the important things that the users want is an easy way to deal with the application consequently the website must be clear and easy.

10. *What will you do to make sure that the users will get the knowledge and skills required for efficient use of the QES?*

First of all, the application will be clear and easy so the user will know what to do. The system will have information, warning and error messages that show the user what to do. Finally, there will be documentation about it, a tutorial where is well explain how to use it.

11. *What will you do to make sure that the users will get the knowledge and skills required for dealing with situations and problems that may arise in the use of the QES regarding for instance, coordination or conflicts between users, relations to other people or groups involved, etc?*

In this kind of application, the users will not be in conflict with other users. The problems that could appear during the use of the system are very well explain in information, warning and error messages letting know the user what to do.

12. *What will you do to make sure that the users get appropriate and adequate introductory training?*

The application will have a tutorial where it is well explain all the actions the administrator can do and how to solve all the possible problems. Also information, warning and error messages will appear in every occasion.

13. *What will you do to make sure that the users will have sufficient time to practice using the QES, on their own or together with other users, when the system has been installed?*

The application will not be difficult, so the user will not need to do so much practise to handle it. All the information required will be in the documentation, and also the website will give the user the opportunity to mend his/her way on every step he/she do.

14. *What will you do to make sure that the users can adjust and modify the QES when they need to?*

The interface of this application will not be changed by the administrator, but he/she is in charge of the website with the questionnaire – A Web Based Questionnaire of Ethical Skills – so he/she will change its interface, depending on how many dilemmas will it show, and on how it should be answered.

15. *What will you do to make sure that the QES provides the users with opportunities for continuous training and for testing and experimenting with the system on their own?*

The company or organization that has designed the system will improve it many times depending on their needs and goals.

16. *If the QES will be used in an organisation, what will you do to make sure that the organisation allows and encourages informal knowledge support, i.e. that they can ask one another for help and help one another with solving problems?*

This application will be used only by the administrator of the organization in charge of it. The system documentation will help him/her to solve any problem.

17. *What will you do to make sure that the online help and user documentation provide appropriate and adequate support?*

This application must be clear and easy to understand, but the information, warning and error messages will help the user in their way thought the application, as well as the documentation provided.

18. *What will you do to make sure that there is appropriate technical support easily available to the users – either experts, other users or colleagues?*

The documentation provided will be the primary help. The administrator makes sure that the Questionnaire website is continuously working, and at the correct velocity.

Ethics, internal relations and relations to society at large

19. *Will there be any ethical problems or conflicts in the organisation where the QES will be used?*

As this application is will be used only by the administrator, there is not going to be ethical problems within the organization.

20. *Will the QES cause any ethical problems or conflicts?*

There could be a conflict if the administrator uses participant information for personal reasons, but as there is not personal information from the participants, as address, telephone numbers, ID number, or anything like that, there will be no conflict of that kind.

Only the administrator could act unethically if he/she does not control correctly the questionnaire website on purpose, but, as the administrator is the one interested in the study of ethical competence, this will not happen.

21. *What groups, individuals, organisations, etc, will in any way be affected by or have a stake in the development, use or mere existence of the QES? (Including society at large and the environment.)*

As this application is the other part of the system “Web based questionnaire of Ethical Skills” the benefits will be the same as in the User Application, because the reason of this system is the benefits that higher ethical competence will produce in individuals, organizations and society.

22. *What values, interests, duties, standpoints and attitudes are involved in the use of the QES?*

As it is mentioned above, the insertion of this kind of system - the User Application as well as the Administrator Application - is made to bring benefits in the first place to the participants, then to the organizations where these participants work, and finally to the whole society, because what we try to figure out with this instrument is the ethical competence of businesspeople and train their ethical skills in order to give them a better knowledge of how to solve a moral conflict and even to anticipate moral conflicts before they arise. And of course, the administration part of it is the one that controls and decides this study.

23. *What effects will the QES have on each of these values, etc? Will the QES fit certain values and conflict with others? What values and how?*

This application, as it is the administrator one, will not produce any conflicts.

24. *What will you do to make sure that the use of the QES will be optimal with regards to ethical aspects? For instance, adapt the design of the product, user training, organisational changes, inform stakeholders, etc? How exactly are you going to succeed with this?*

The application will be easy to understand, and with the help of the documentation and the information, warning and error messages that appears on it, the administrator will not have any problem to know how to use it.

2.2.1.2. User Analysis

Categories (Benyon, Turner & Turner, 2005) will also be used in this user analysis, and interview with people that works already as administrator of website will be done to do it.

In the user analysis there are a lot of characteristics which are important to examine:

Users' goals of using the system:

- Control a website in an easy way.
- Avoid movement: nowadays everyone has Internet at home or/and at work.

Users' tasks:

- Add dilemmas to the questionnaire.
- Delete dilemmas from the questionnaire.
- Edit dilemmas.
- Lock dilemmas, in order to not be seen by the user in the questionnaire.
- Unlock dilemmas
- Add alternatives to each dilemma.
- Delete alternatives from each dilemma.
- Edit alternatives.
- Lock alternatives, in order to not be seen by the user in the questionnaire.
- Unlock alternatives
- Decide the number of dilemmas the questionnaire should show.
- Decide the number of alternatives the questionnaire should show per dilemma.
- Decide the way the questionnaire should be answer.
- See the answers of the participants, save or print them.
- Delete the answers of the participants.

Composition of the user group:

- The age of the user can vary in a range, from young to adults.
- There are a lot a user profiles. The most common are divided by age: young, adults and older people.
- An administrator website usually is used only by one administrator, but it could be that the organization has a group of administrators.

Cognitive and physical conditions and limitations:

- Some users have disabilities such as visual and hearing impairment, colour blindness.

Education and experience:

- The system will be written in English language, as is one of the languages more used and know in our society.
- Administrators of websites normally have a lot or medium experience in computers and in Internet.

Aids and tools available:

- Graphical icons
- Information, warning and error messages

The usage of the system:

- It is mandatory to use, because is the application that has to control the Questionnaire website.
- It can be used anytime the administrator wants.

Organization:

- The application has a menu that allows the administrator to do the action he/she wants and needs.

Environment:

- The environment of the system is indoors, if we are talking about computers. But users can also reach Internet from many displays, laptops, mobile phones, etc.

Example of user profiles:

	Adults	Older
Age	30-60	60-80
Gender	Male/female	Most females
Computer experience	Medium-large	Short
Internet habits	Medium-large	Short
Limitations	Short-medium	Large

As it is shown in this table, young people are not considered a good profile of administrator, because they have not enough ethical competence yet to assess the participants. Surely we will have many young participants, but the administrators will be older.

2.2.1.3. Task Analysis

The questions that the Task Analysis (Hackos & Redish, 1998) should give answers about are:

1. *Goal. Why is the user carrying out a specific task?*

Every website needs an administrator that controls it, that is why the administrator has its own application from where he/she can do it. The administrator is the one that decides how the questionnaire will be and also the way it must be answered.

2. *Subtasks. What steps or operations have to be done in order to carry out the task?*

There are a lot of tasks that must be done. The main task of the administrator is to create the questionnaire, adding dilemmas and alternatives to it. Once it is done, the administrator can change the questionnaire as he/she wants: editing, locking or deleting dilemmas and alternatives.

The administrator also has to decide how many alternatives the questionnaire will show, and the way it must be answer.

Once participants have answered the questionnaire, the administrator can check out their answers, save or print them.

These sub-tasks are better explained in the Hierarchical Task Analysis below.

3. *Frequency and time. How often is the task been carried out? How long time does it take to perform the task?*

This kind of application could be used every time the user wants. Depending on the task the administrator wants to do it will take more or less time. The longer task is the creation of the questionnaire for the first time, but once this is done the rest of tasks will take little time. The application is prepare to do changes very fast and easily.

4. *Environment/context. Where is the task carried out? In what context is the system being used?*

This application does not need a specific context. It can be found in Internet, so the user has access to it from many displays, computers, mobile phone, etc.

5. *Organization. Are the users cooperating with others?*

As I said before, this application should be used only by one administrator, but if there is a group of them the cooperation between them will be as easy as letting know the other administrators which of them is using the application in every moment.

6. *What technical aids are necessary to perform the task; tools, computer applications, networks, phones, paper forms, etc?*

This application will need a computer or other display with internet network.

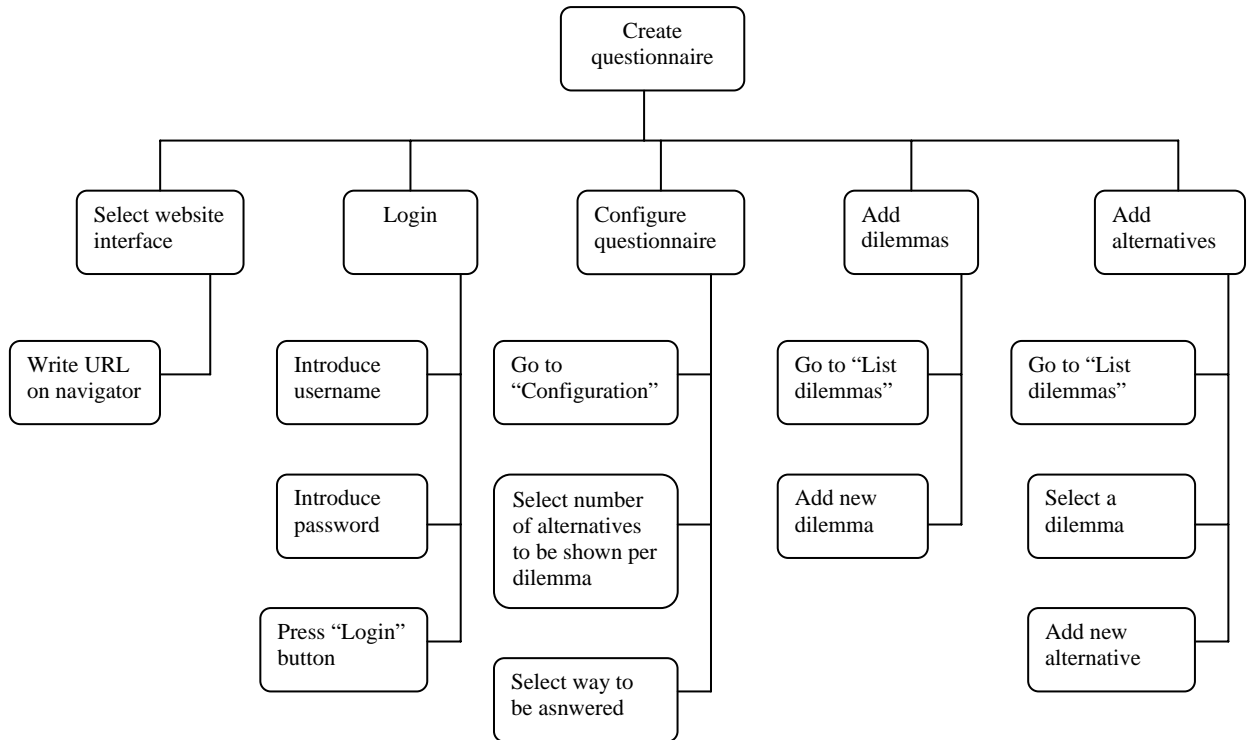
7. *Are there critical steps or 'bottlenecks' in the work procedures that makes the task more difficult?*

This QES is a website, so the problem that a user could find will be the velocity of the network.

As well as the task analysis on the User Application, this application task analysis has been also done using the Hierarchical Task Analysis (HTA), where tasks are divided into less complex subtasks, and finally reach a more or less atomic operation, such as pressing a button.

The purpose of hierarchical task analysis is to describe the users' tasks structured in a hierarchy of goals, tasks, operations and plans.

As it is mentioned before the main task is to create the questionnaire, but there are a lot of sub-tasks that can be done. Therefore, the next figure describes the hierarchy of our system according to the HTA for the main task:



The explanation of the figure is the following:

Main task: Create the questionnaire

Sub – tasks:

1. Select the website interface:
 - 1.1 Write the U.R.L. of the website on any navigator.
2. Login:
 - 2.1 Introduce the administrator username.
 - 2.2 Introduce the administrator password.
 - 2.2 Press the “Login” button.
3. Configure the questionnaire:
 - 3.1 Go to menu and select “Configuration”.
 - 3.2 Select the number of alternatives to be shown per dilemma.
 - 3.3 Select the way the questionnaire should be answered.
4. Add dilemmas to the questionnaire:
 - 4.1 Go to menu and select “List Dilemmas”.
 - 4.2 Add a new dilemma.
5. Add alternatives to each dilemma:
 - 5.1 Go to menu and select “List Dilemmas”.

- 5.2 Select a dilemma.
- 5.3 Add a new alternative: add as many alternatives as is required, depending on the configuration selected.

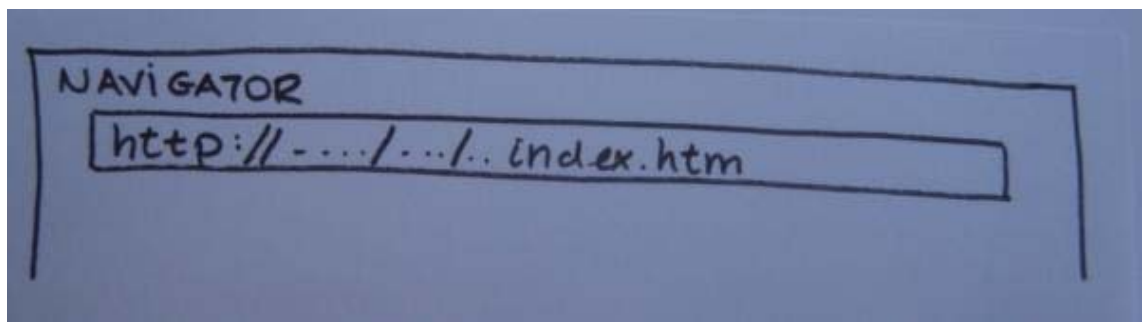
2.2.2. Design of the System

2.2.2.1. Storyboard of the system

All the steps that the user must do to complete the task of answering the questionnaire are explained below. Sketches of the system in every step are been used, and an arrow on the button that the user has to press in each step is been drawn.

An example of user could be a 35 years old man.

1. Select the website by writing the U.R.L. on a navigator.



2. The login page will be shown on the navigator. The user introduces his/her username and password and presses the "Login" button. If the user has introduced wrong information an error message will appear telling the user what has happened.



- On the left site of the website is the menu and the user presses the Configuration link to configure the questionnaire. He/she has to select the number of alternatives the questionnaire should show per dilemma (2, 4 or 8) and also the way the questionnaire should be answered (checking 1, 2, 4 or 8 alternatives).

ADMINISTRATOR PAGE

CONFIGURATION ←

Select the number of alternatives:

01

02

04

08

Select the way to answer:

checking 1 checking 4

checking 2 checking 8

- Once this is done, the user presses the “List dilemmas” link of the menu. Presses the “Add dilemma” link and fills in the form in order to create a new dilemma. He/she can add as many dilemmas as he/she wants.

ADMINISTRATOR PAGE

LIST DILEMMAS

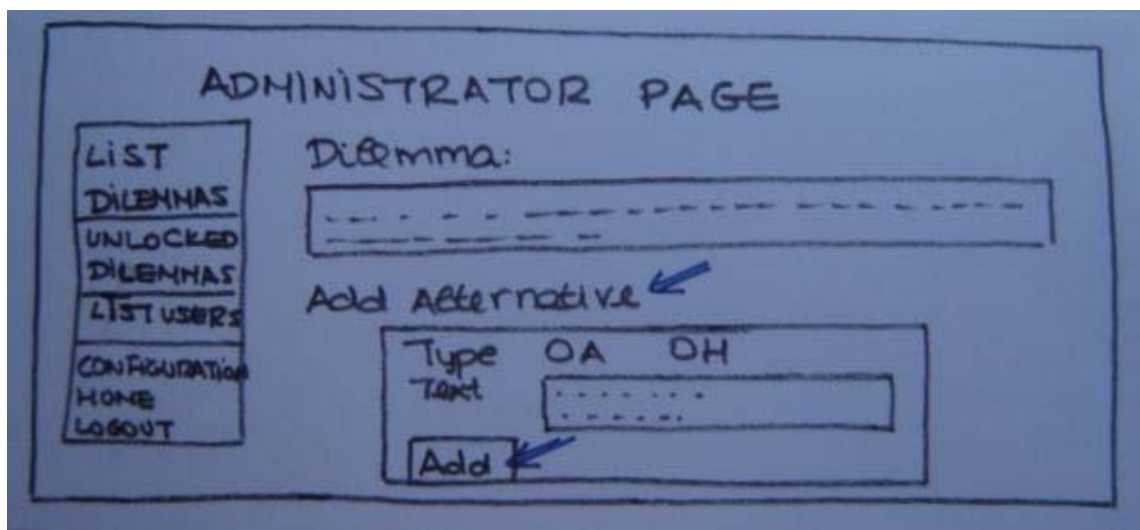
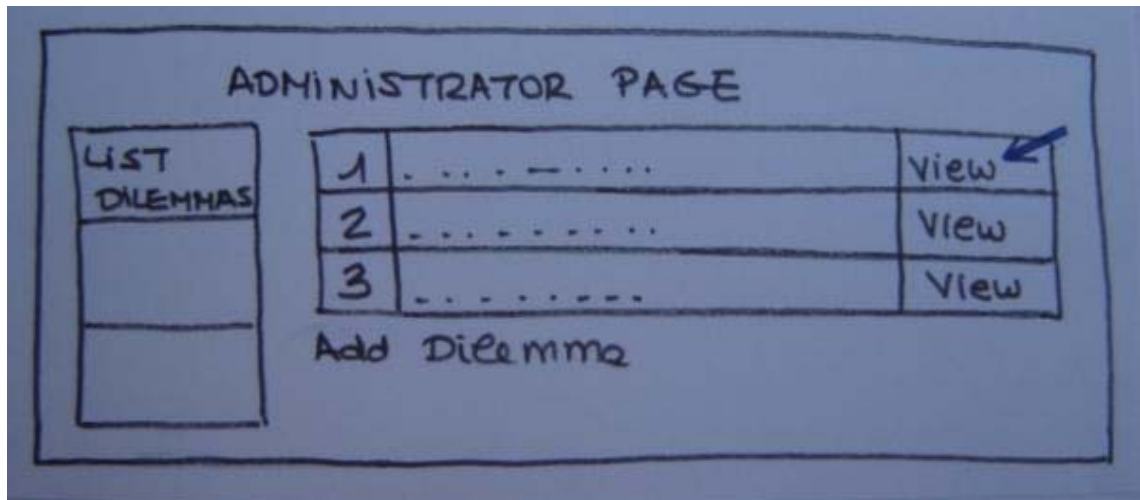
1	View
2	View

Add Dilemma ←

Text:

- The next step is to add alternative to each dilemma. In order to do it, the user presses the “List dilemmas” link of the menu and selected the first dilemma pressing the “View” link. Presses the “Add alternative” link and fills in the form to create a new alternative. He/she has to add as many alternatives as is required per dilemma depending on the configuration selected. To go to the next dilemma

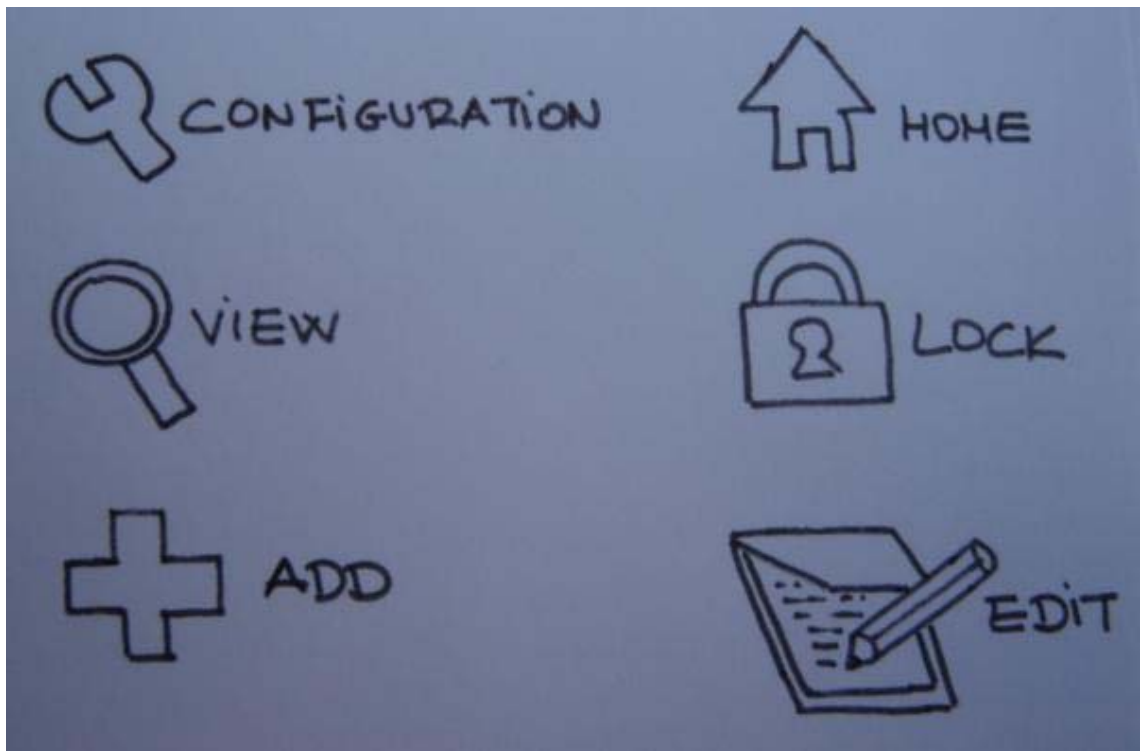
he/she can press the “Next” link on the webpage bottom, or again go to the list of dilemmas and select another dilemma from there.



2.2.2.2. Prototype of the system

The design of this application will have a lot of metaphors that gives an easy way to understand and use the system. Metaphors have been used as images that expressed the action the user should do. But in order to make the website as easy as possible all the images are accompany by text.

Sketches of some of these examples are shown in the next figure:



This website is divided in three different sections. The top section shows the title of the website; the section on the left has the menu that shows the different actions the user can do, and on the right and main section shows the information of the different actions of the menu.

A prototype sketch of the homepage could be:



2.2.2.3. QOC Documentation

The documentation of this design will be done by the QOC (Questions, Options and Criteria) Method (Preece, 1994). With a good documentation the evaluation part would be easy later on.

It is difficult to document all decisions making for a system because they are a lot of them, but here they are presented the most important ones.

To make this documentation the HTA figure of the Task Analysis will be followed and all the possible questions for the design will be answered.

To represent each QOC the list method will be used. Q is the question, O1 is the first option, O2 is the second option, C1 means that is criteria for the first option, and C2 for the second option. The C1,2 means that the option number 1 and 2 has the same criteria.

Q: Where should the menu be?

O1: On the left site.

O2: On the top section after the title.

C1,2: Easy to understand.

C1,2: Easy to learn.

C1: Simple to implement.

As both have the same advantages but the first one is a little bit easier to implement, the website will have the menu on the left site.

Q: How will the forms be?

O1: Static on the website: this means, forms will be always shown on the screen.

O2: Dynamic: this means, forms can appear and disappear if the user click or not on the link.

C1: Easy to implement.

C2: Occupy less space on the website.

C1,2: Easy to understand.

C1,2: Easy to learn.

C2: Prettier design.

C2: The user has not to scroll the screen down.

Unless static forms are easier to implement, there are more benefits with dynamic forms: they do not occupy constantly space on the screen so the user does not have to scroll down the screen so many times.

Q: How does the user will choose the alternatives to be shown per dilemma, when there are more alternatives per dilemma that the questionnaire should show?

O1: By clicking on them, and the ones checked will be shown.

O2: By locking and unlocking them, and the unlock alternatives will be shown.

O3: By changing the order of them and the first ones on the list are the ones that will be shown.

C1,3: Easy to understand.

C3: The user will make fewer errors.

C1,2,3: Easy to learn.

C3: Easy to implement.

There are a lot of ways to choose the alternatives that have the same difficulty for the user to understand. But, by changing the order of them is the easiest to implement not to allow the user to make errors, because always the first alternatives of the list will be shown, depending on the number of alternatives that the questionnaire should show. With the other two possibilities the user has to check or unlock the exact number of alternatives that the questionnaire should show, and this means a bigger concentration of the user.

Q: How do the dilemmas will be shown?

O1: On one list with all the dilemmas, some of them lock and others unlock, where the unlocked dilemmas are the one that the questionnaire will show and the lock ones are the ones temporary saved on the data base for later use.

O2: Divided in two lists: one with the unlocked dilemmas and one with the lock dilemmas.

C2: Easy to understand.

C2: Easy to learn.

C2: Easy to implement.

As the second option has all the benefits, the dilemmas will be show in two different lists.

Q: How do the alternative will shown?

O1: All the alternatives (the ones of the two-alternative version, four-alternative version and eight-alternative version) of the dilemma together.

O2: Depending of the configuration (the version the user has decided) show only the alternatives of each version.

O1,2: Easy to learn.

O2: Easy to understand.

O2: The screen will not be so full of information, and the user will not have to scroll the screen down so many times.

As the second possibility is easy to understand is the one that will be implemented.

Q: How do the answers of the users will be shown?

O1: In the website.

O2: In a pdf file.

C1,2: Easy to lean.

C2: Easy to understand.

C2: Easy to use: the user can print and save this information easily on a pdf file.

The user answers will be shown on a pdf file because there are more benefits.

2.2.3. Usability Evaluation

2.2.3.1 Heuristic evaluation

There are ten heuristics for user interface design proposed by Jakob Nielsen (Nielsen, 1993) and those heuristics are going to be used to do the evaluation.

1. Visibility of system status

The application main page has an introduction where the user can find information about the website.

Information, warning and error messages are good feedback for the user to indicate that he/she is doing something wrong, and how to solve the problem.

On the left site of the website is situated the menu where the user can select what he/she wants to see.

2. Match between system and the real world

One relevant thing is that the website is in English, fact that makes the website more general and reachable.

The system has familiar expressions, so the user can understand easily everything that it is tell in the website. Also, instead of only icons or images, the website has text next to them, so users can understand better the meaning of them and what do they do.

3. User control and freedom

The menu on the left site let the user know what he/she can see on the website.

Information messages appear every time the user has to field in some form in order to explain what he/she is suppose to do in each on them.

Warning and error messages are shown to tell the user that has made and error and how to solve it easily, indicating exactly what to do.

4. Consistency and standards

The website is consistent and uses the same expressions and words for the same thing, without changing them all the time. The user can understand the site easily.

5. Error prevention

This is an easy website where errors are prevented in many ways.

Every time the user fill in some form, for example when he/she tries to add or edit a dilemma or alternative, an information message appears next to the form letting know what to do. If the user has made something wrong, a warning message appears telling the user that the action has not been made and how to do it well.

When the user tries to delete an alternative or dilemma that has been answered by some participant, an error message appears letting know the user that that alternative or dilemma can not be deleted.

When the user has decided in the configuration how many alternatives per dilemma the questionnaire will show, a warning message will appear in every dilemma that does not have the enough number of alternatives, letting know the user that he/she has to add as many alternatives as he/she has decided in the configuration. But, in order to avoid this “human” error, the questionnaire website will not show the dilemmas that do not have a enough number of alternatives.

6. Recognition rather than recall

The website is simple and the user would not have problems to make actions and remember them, because every action is done in few steps and he/she has not to remember a lot of information in order to do some action. Also information and warning messages let the user remember how to act.

7. Flexibility and efficiency of use

As this application is for administrate a website, normally it will be used by experts in computers and internet, but as it is easy to use everyone that has medium knowledge can me its administrator too.

8. Aesthetic and minimalist design

This page features a minimalist design. It only has the relevant information visible in each page, the important things the user must know and do in every step.

9. Help users recognize, diagnose, and recover from errors

As it is mentioned before, this system has different constructively warning and error messages that tell the user how to solve the problem, as well as information messages to prevent those errors.

10. Help and documentation

This application will have a tutorial where it is well explain all the actions the user can do and how to do them. Also it will explain the meaning of all the information, warning and error messages that will appear to help the user.

2.2.3.2. User Testing

With the user testing we can find out how difficult the system is to real users. In this case, we also have the real website (<http://www.javierly.com/mayte/admin>) to do the user-testing, instead of make the user guess about how the website would be.

The user testing of the administrator part was also done by five users with different skills in Internet, three of them familiarize with internet and two as novice users.

For doing the user testing I have been the experimenter and I have followed these steps per user:

- Make an appointment with the user.
- Ask the user to make a certain task, for example, to add another dilemma to the questionnaire.
- Observe the user while he/she was using the system.
- After every test ask the user about the difficulty of the system.

After doing the user testing with the five users I have redesigned the system in order to fix the usability problems observed.

There have been done three tests per user along the process of design. After finding with the first test most of the usability problems these problems have been fixed in a redesign. After creating a new design I have tested again. After the second test was done another redesign was necessary and also a third test. The website shows the design's result after the third test.

The website of the administrator part is more complex that the user one, because there are more actions to be done by this website's user – the administrator.

After the user testing it was clear:

- The need of a menu

- The improvement of having drawings beside the actions to make them more understandable
- To have light colours
- The need to separate dilemmas in two lists, the ones that will appear in the questionnaire and the ones that are temporary saved in the data base.
- To separate the alternatives depending on the questionnaire's version only showing the alternatives of the chosen version
- The way to lock alternatives
- The importance of warning and error messages

I have been done several changes on those particular aspects in the different redesigns, until users have not found problems with them.

3. STRUCTURED SYSTEM ANALYSIS AND DESIGN

This system has been developed by the Structured Model (Page-Jones, 1980). In this section is explained the different steps of the Structured Analysis and Design that has been followed (Alonso, Martínez & Segovia, 2005).

The Essential Model is a model of what the system must do but does not define how the system will accomplish its purpose. It is a combination of the environmental and behavioural models.

3.1. Environmental Model

It defines de scope of the proposed system. It defines the boundary and interaction between the system and the outside world. It is composed of:

- Statement of Purpose
- Context Diagram
- Event List

3.1.1. Statement of Purpose

The statement of purpose is a clear and concise textual description of the purpose for the system. It is deliberately vague. It is intended for the top level management, user management, and others who are not directly involved in the system.

“The system “A Web based Questionnaire of Ethical Skills” has to be a website that shows a questionnaire with a number of short stories (dilemmas) involving different ethical conflicts in business. Following each story there would be a number of

alternatives that can be used as ground for solving the ethical conflict. The number of dilemmas, as well as the number of alternatives, shown in the questionnaire will be decided by the administrator, as well as the way the user should answer the questionnaire: checking only one, two, four or all alternatives per dilemma in terms of importance to consider the solution of the problem. Thus, the administrator should add, consult, edit, lock and delete dilemmas and alternatives. The user (participant) has to answer the questionnaire and fill in a form with some background information, and the system should save all this information, as well as the user's answers. This background information is: age, gender, education, employment, position, how many years has he/she been a leader, how many ethical conflicts does he/she think he/she find at work and how many ethical conflicts does he/she think he/she find in his/her private life. The user's information and answers can also be consulted and deleted by the administrator."

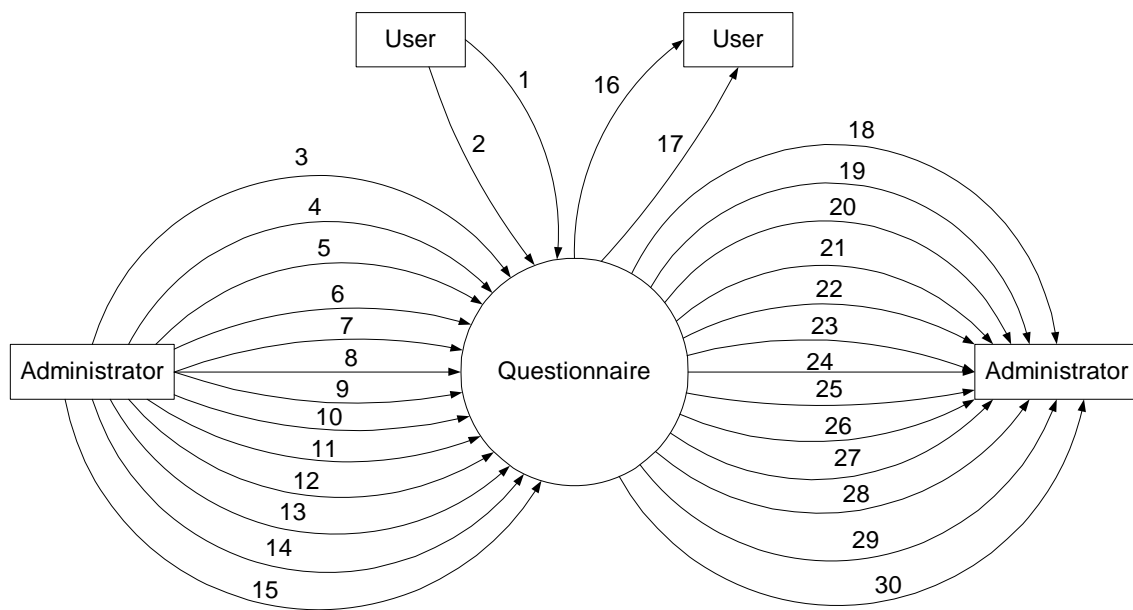
3.1.2. Context Diagram

The data flow diagram (DFD) (Page-Jones, 1980) is a network representation used to partition a system. A DFD shows the active components of the system and the data interfaces between them. It highlights the boundary between the system and the outside world. It highlights the people, organizations, and outside systems that interact with the system under development.

The DFD comprises four graphic elements: the data flows (arrows), the processes (bubbles), the data stores (pair of parallel lines) that are the temporary depository of data, and the external entities (box) that are the origin/receiver of the data.

The Context Diagram is a special case of the data flow diagram, it is the top diagram. It is the highest level view of the system showing it as a whole and its inputs and outputs from/to external actors.

In this first diagram it is drawn a unique process that represents the proposed system: Questionnaire and there are two external entities (users of the system): User and Administrator.



- 1: data_add_user
- 2: data_error
- 3: data_consult_user
- 4: data_delete_user
- 5: data_add_dilemma
- 6: data_consult_dilemma
- 7: data_edit_dilemma
- 8: data_lock_dilemma
- 9: data_delete_dilemma
- 10: data_add_alternative
- 11: data_consult_alternative
- 12: data_edit_alternative
- 13: data_lock_alternative
- 14: data_delete_alternative
- 15: data_error

- 16: result_add_user
- 17: result_error
- 18: result_consult_user
- 19: result_delele_user
- 20: result_add_dilemma
- 21: result_consult_dilemma
- 22: result_edit_dilemma
- 23: result_lock_dilemma
- 24: result_delete_dilemma
- 25: result_add_alternative
- 26: result_consult_alternative
- 27: result_edit_alternative
- 28: result_lock_alternative
- 29: result_delete_alternative
- 30: result_error

3.1.3. Event List:

It is a list of events outside of the system that affect it and to which it must respond.

Add_user (data_add_user, result_add_user)

Consult_user (data_consult_user, result_consult_user)

Delete_user (data_delete_user, result_delete_user)

Add_dilemma (data_add_dilemma, result_add_dilemma)

Consult_dilemma (data_consult_dilemma, result_consult_dilemma)

Edit_dilemma (data_edit_dilemma, result_edit_dilemma)

Lock_dilemma (data_lock_dilemma, result_lock_dilemma)

Delete_dilemma (data_delete_dilemma, result_delete_dilemma)

Add_alternative (data_add_alternative, result_add_alternative)
Consult_alternative (data_consult_alternative, result_consult_alternative)
Edit_alternative (data_edit_alternative, result_edit_alternative)
Lock_alternative (data_lock_alternative, result_lock_alternative)
Delete_alternative (data_delete_alternative, result_delete_alternative)

Error_command (result_error, result_error)

3.2. Behavioural Model:

It is the model of the internal behaviour and data entities of the system. It models the functional requirements. It is composed of:

- Data Flow Diagram
- Process Specification
- Data Dictionary
- Entity Relationship Diagram

3.2.1. Data Flow Diagram (DFD):

The DFD provides a means for functional decomposition. It is the primary tool in analysis to model data transformation in the system.

Leveling: The DFD should be partitioned in a top-down way. The system is decomposed in lower level DFD into a set of processes, data stores, and the data flows between these processes and data stores. Each process is then decomposed into an even lower level diagram containing its subprocesses.

In this system there are four data store: User, Answer, Dilemma and Alternative

Diagram 0:

It is the high level DFD that shows the major processes in the system.

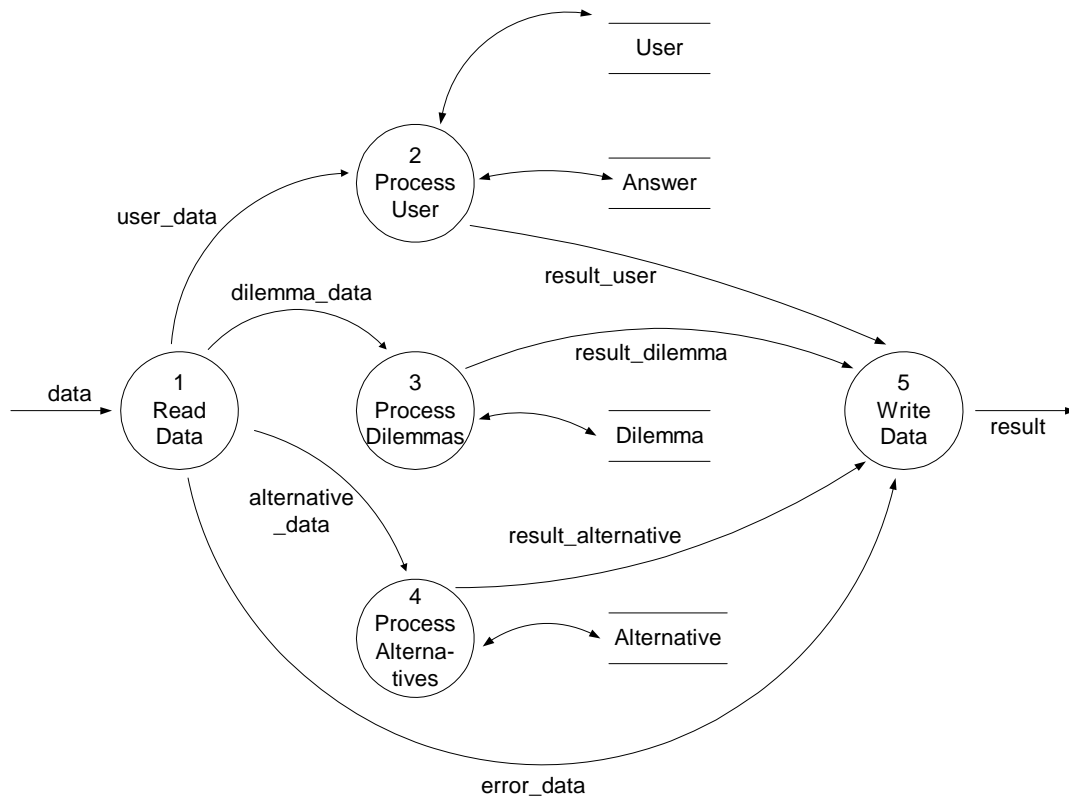


Diagram 2:

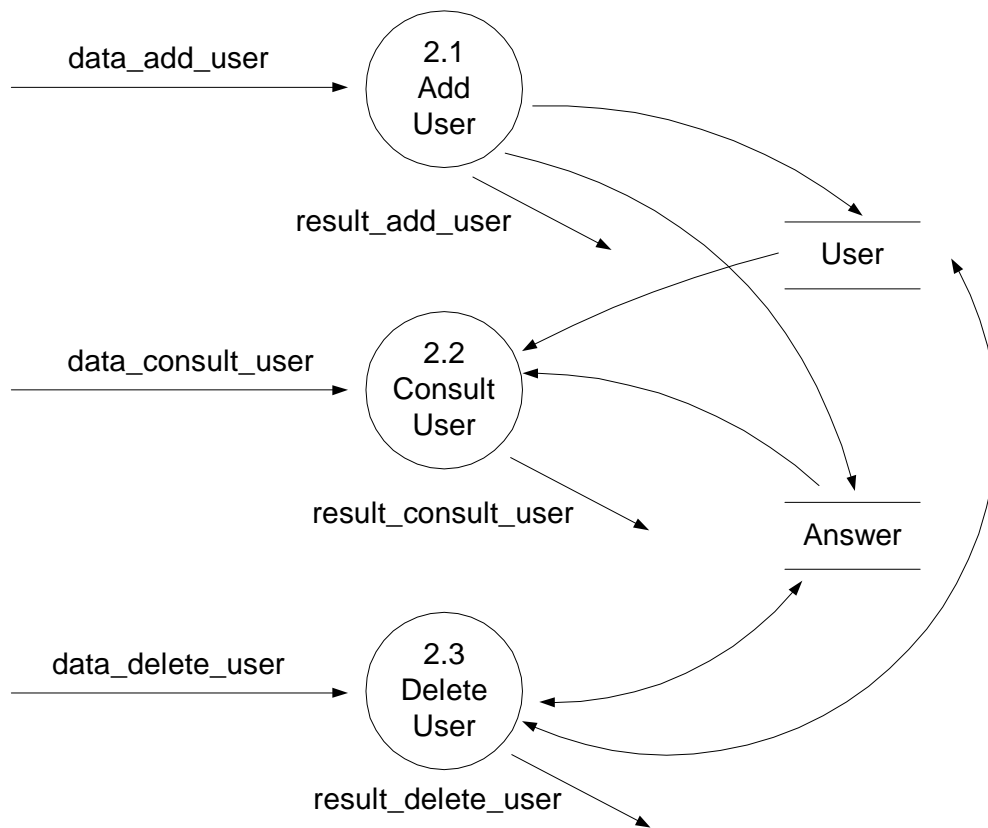


Diagram 3:

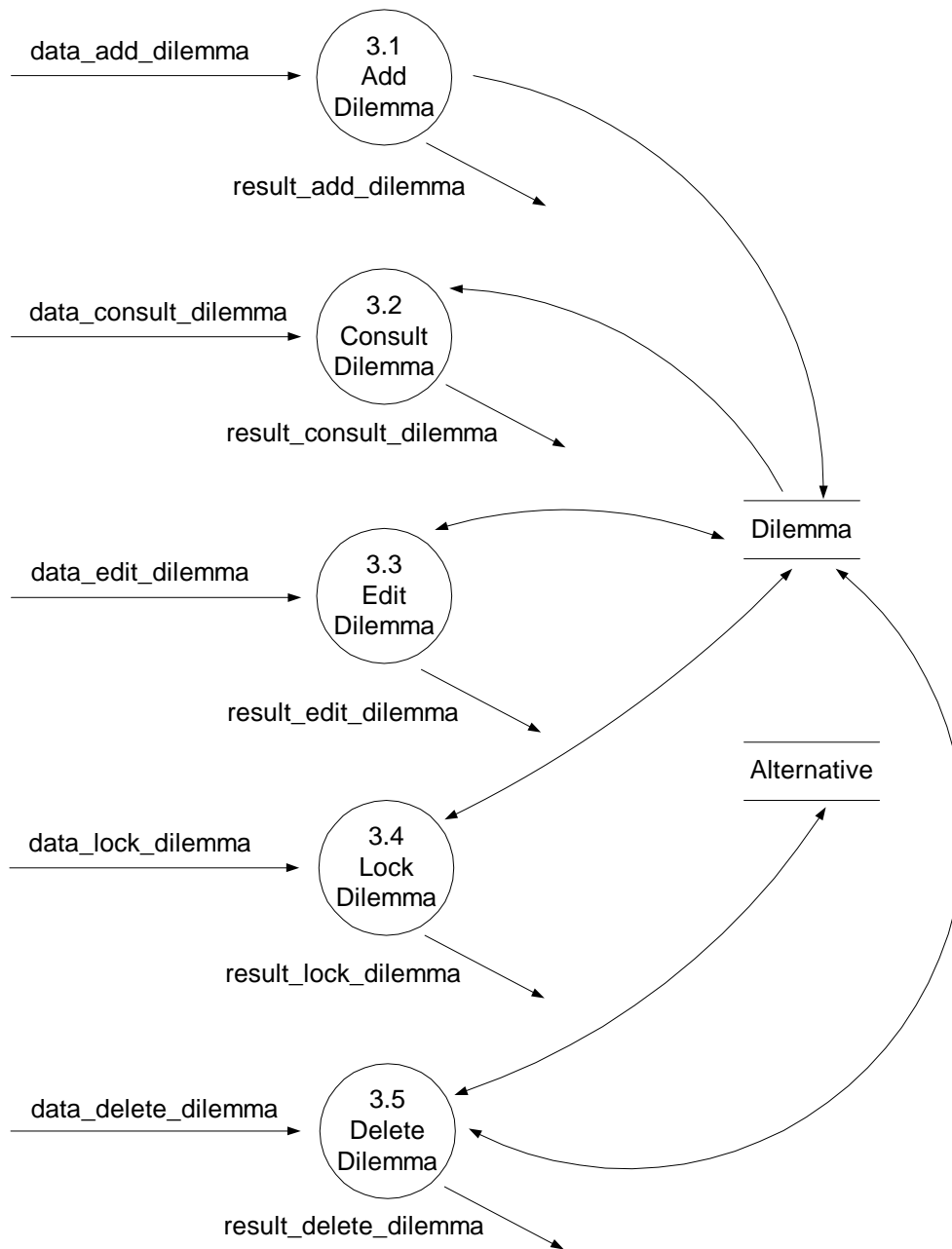
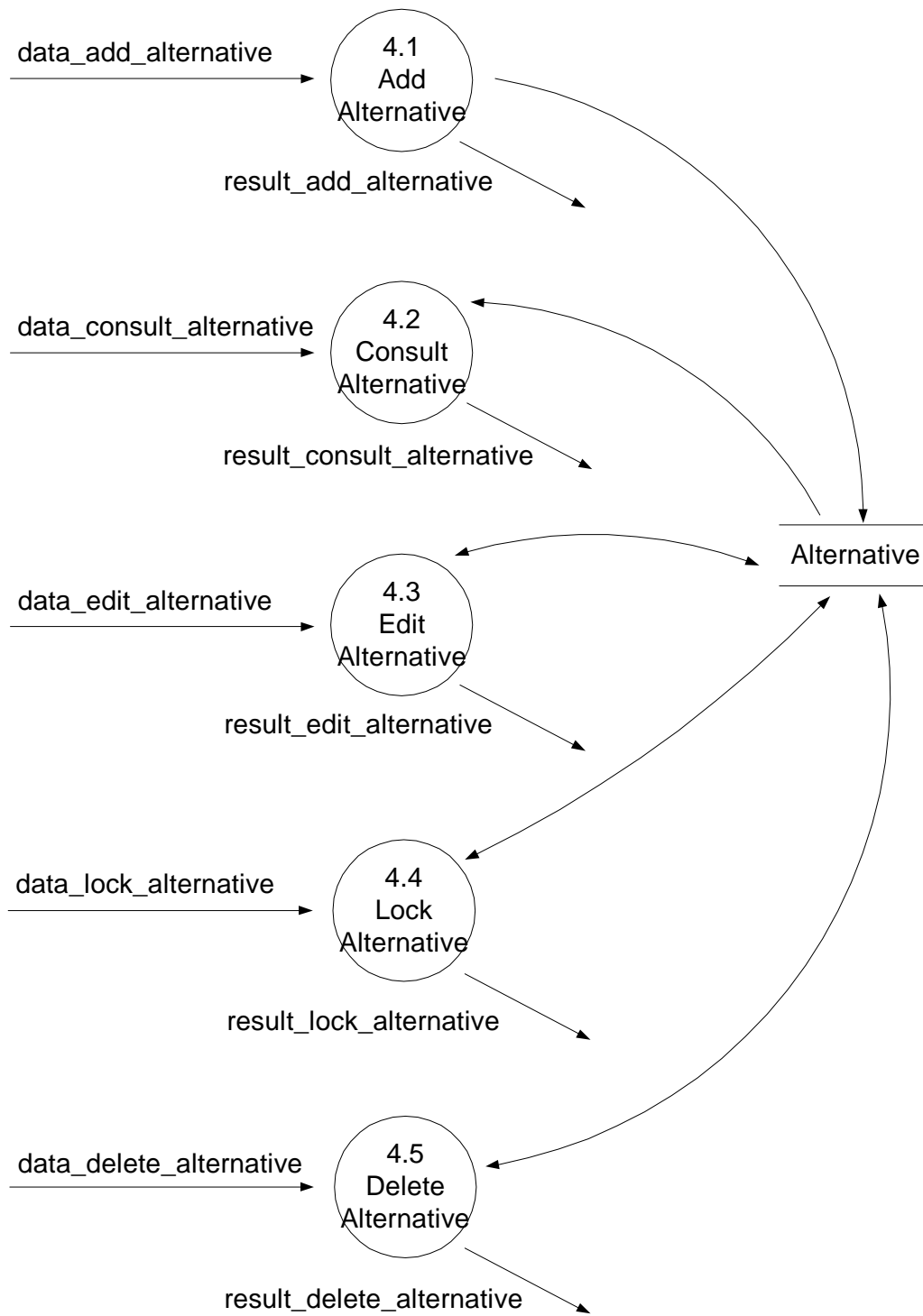


Diagram 4:



3.2.2. Process Specification:

It shows process details which are implied but not shown in a DFD. It specifies the input, output and algorithm of a module in the DFD. Normally it is written using pseudo-code.

Pseudo-code is an informal and very flexible programming language that is not intended to be executed on a machine but is used to organize a programmer's thoughts prior to coding. It is used to clarify the detailed internal procedure of the lowest level processes on the DFD.

Process 1: READ DATA

Input: data // operation_type + operation_data

Process 1:

Ask for operation_type

Case operation_type

=1: Ask for data_add_user

if data_error

then

result_error = "Error with data of add user"

go to Process 5

else

go to Process 2.1

end if

=2: Ask for data_consult_user

if data_error

then

result_error = "Error with data of consult user"

go to Process 5

else

go to Process 2.2

end if

=3: Ask for data_delete_user

if data_error

then

result_error = "Error with data of delete user"

go to Process 5

else

go to Process 2.3

end if

=4: Ask for data_add_dilemma

if data_error

```
then
  result_error = "Error with data of add dilemma"
  go to Process 5
else
  go to Process 3.1
end if
```

```
=5: Ask for data_consult_dilemma
if data_error
then
  result_error = "Error with data of consult dilemma"
  go to Process 5
else
  go to Process 3.2
end if
```

```
=6: Ask for data_edit_dilemma
if data_error
then
  result_error = "Error with data of edit dilemma"
  go to Process 5
else
  go to Process 3.3
end if
```

```
=7: Ask for data_lock_dilemma
if data_error
then
  result_error = "Error with data of lock dilemma"
  go to Process 5
else
  go to Process 3.4
end if
```

```
=8: Ask for data_delete_dilemma
if data_error
then
  result_error = "Error with data of delete dilemma"
  go to Process 5
else
  go to Process 3.5
end if
```

```
=9: Ask for data_add_alternative
if data_error
then
```

```
        result_error = "Error with data of add alternative"
        go to Process 5
    else
        go to Process 4.1
    end if

=10: Ask for data_consult_alternative
    if data_error
    then
        result_error = "Error with data of consult alternative"
        go to Process 5
    else
        go to Process 4.2
    end if

=11: Ask for data_edit_alternative
    if data_error
    then
        result_error = "Error with data of edit alternative"
        go to Process 5
    else
        go to Process 4.3
    end if

=12: Ask for data_lock_alternative
    if data_error
    then
        result_error = "Error with data of lock alternative"
        go to Process 5
    else
        go to Process 4.4
    end if

=13: Ask for data_delete_alternative
    if data_error
    then
        result_error = "Error with data of delete alternative"
        go to Process 5
    else
        go to Process 4.5
    end if

default:
    result_error = "Unknown command"
    go to Process 5
end case
```

end Process 1

Output: user_data, dilemma_data, alternative_data, result_error.

Process 2.1: ADD USER

Input: data_add_user // operation_type + age + gender + education + employment + position + leader + work + life + answers

User (data store)

Answer (data store)

Process 2.1

Add_User (age, gender, education, employment, position, leader, work, life, answers)

result_add_user = "User added"

go to Process 5

end Process 2.1

Output: result_add_user, User (data store) and Answer (data store)

Process 2.2: CONSULT USER

Input: data_consult_user // operation_type

User (data store)

Answer (data store)

Process 2.2

users = Obtain_Users(User (data store))

answers = Obtain_Answers(Answer (data store))

if users is empty // if users is empty/full answers will also be empty/full
then

result_consult_user = "There are no users"

go to Process 5

else

result_consult_user = empty

forall u in users

forall a in answers

result_consult_user = result_consult_user + u_data + a_data

end forall

end forall

go to Process 5

end if

end Process 2.2

Output: result_consult_user

Process 2.3: DELETE USER

Input: data_delete_user // operation_type + age + gender + education + employment + position + leader + work + life + answers

User (data store)

Answer (data store)

Process 2.3

Delete_User (age, gender, education, employment, position, leader, work, life, answers)

result_delete_user = "User deleted"

go to Process 5

end Process 2.3

Output: result_delete_user, User (data store) and Answer (data store)

Process 3.1: ADD DILEMMA

Input: data_add_dilemma // operation_type + text + locked

Dilemma (data store)

Process 3.1

Add_Dilemma (text, locked)

result_add_dilemma = "Dilemma added"

go to Process 5

end Process 3.1

Output: result_add_user and Dilemma (data store)

Process 3.2: CONSULT DILEMMA

Input: data_consult_dilemma // operation_type

Dilemma (data store)

Process 3.2

dilemmas = Obtain_Dilemmas (Dilemma (data store))

if dilemmas is empty

then

result_consult_dilemmas = "There are no dilemmas"

go to Process 5

else

result_consult_dilemmas = empty

forall d in dilemmas

result_consult_dilemmas = result_consult_dilemmas + d_data

end forall

go to Process 5

end if

end Process 3.2

Output: result_consult_dilemmas

Process 3.3: EDIT DILEMMA

Input: data_edit_dilemma // operation_type + text

Dilemma (data store)

Process 3.3

Edit_Dilemma (text)

result_edit_dilemma = "Dilemma edited"

go to Process 5
end Process 3.3
Output: result_edit_dilemma and Dilemma (data store)

Process 3.4: LOCK DILEMMA

Input: data_lock_dilemma // operation_type + text + locked
Dilemma (data store)
Process 3.4
 Lock_Dilemma (text, locked)
 result_lock_dilemma = "Dilemma locked"
 go to Process 5
end Process 3.4
Output: result_lock_dilemma and Dilemma (data store)

Process 3.5: DELETE DILEMMA

Input: data_delete_dilemma // operation_type + text + locked
Dilemma (data store)
Process 3.5
 Delete_Dilemma (text, locked)
 result_delete_dilemma = "Dilemma deleted"
 go to Process 5
end Process 3.5
Output: result_delete_dilemma and Dilemma (data store)

Process 4.1: ADD ALTERNATIVE

Input: data_add_alternative // operation_type + description + type + locked + num_order
Alternative (data store)
Process 4.1
 Add_Alternative (description, type, locked, num_order)
 result_add_alternative = "Alternative added"
 go to Process 5
end Process 4.1
Output: result_add_alternative and Alternative (data store)

Process 4.2: CONSULT ALTERNATIVE

Input: data_consult_alternative // operation_type
Alternative (data store)
Process 4.2
 alternatives = Obtain_Alternatives (Alternative (data store))
 if alternatives is empty
 then

```
        result_consult_alternative = "There are no alternatives"  
        go to Process 5  
    else  
        result_consult_alternative = empty  
        forall a in alternatives  
            result_consult_alternative = result_consult_alternative + a_data  
        end forall  
        go to Process 5  
    end if  
end Process 4.2  
Output: result_consult_alternative
```

Process 4.3: EDIT ALTERNATIVE

Input: data_edit_alternative // operation_type + description + type

Alternative (data store)

Process 4.3

```
    Edit_Alternative (description, type)
```

```
    result_edit_alternative = "Alternative edited"
```

```
    go to Process 5
```

end Process 4.3

Output: result_edit_alternative and Alternative (data store)

Process 4.4: LOCK ALTERNATIVE

Input: data_lock_alternative // operation_type + description + type + locked + num_order

Alternative (data store)

Process 4.4

```
    Lock_Alternative (description, type, locked, num_order)
```

```
    result_lock_alternative = "Alternative locked"
```

```
    go to Process 5
```

end Process 4.4

Output: result_lock_alternative and Alternative (data store)

Process 4.5: DELETE ALTERNATIVE

Input: data_delete_alternative // operation_type + description + type + locked + num_order

Alternative (data store)

Process 4.5

```
    Delete_Alternative (description, type, locked, num_order)
```

```
    result_delete_alternative = "Alternative deleted"
```

```
    go to Process 5
```

end Process 4.5

Output: result_delete_alternative and Alternative (data store)

3.2.3. Data Dictionary:

The data dictionary contains the definitions of all data mentioned in the DFD. Thus, it is composed of specifying flows and stores named on the DFD. It defines data elements to avoid different interpretations.

data = operation_type + operation_data

operation_type = [user_operation_type | dilemma_operation_type | alternative_operation_type | other_operation]

user_operation_type = [1 *add user* | 2 *consult user* | 3 *delete user*]

dilemma_operation_type = [4 *add dilemma* | 5 *consult dilemma* | 6 *edit dilemma* | 7 *lock dilemma* | 8 *delete dilemma*]

alternative_operation_type = [9 *add alternative* | 10 *consult alternative* | 11 *edit alternative* | 12 *lock alternative* | 13 *delete alternative*]

other_operation = [other *unknown command*]

operation_data = [user_data | dilemma_data | alternative_data]

user_data = user_operation_type + user_operation_data

user_operation_data = [data_add_user | data_consult_user | data_delete_user]

data_add_user = age + gender + education + employment + position + leader + work + life + answers

data_consult_user = NULL

data_delete_user = age + gender + education + employment + position + leader + work + life + answers

dilemma_data = dilemma_operation_type + dilemma_operation_data

dilemma_operation_data = [data_add_dilemma | data_consult_dilemma | data_edit_dilemma | data_lock_dilemma | data_delete_dilemma]

data_add_dilemma = text + locked

data_consult_dilemma = NULL

data_edit_dilemma = text

data_lock_dilemma = text + locked

data_delete_dilemma = text + locked

alternative_data = alternative_operation_type + alternative_operation_data

alternative_operation_data = [data_add_alternative | data_consult_alternative | data_edit_alternative | data_lock_alternative | data_delete_alternative]

data_add_alternative = description + type + locked + num_order

data_consult_alternative = NULL

data_edit_alternative = description + type

data_locked_alternative = description + type + locked + num_order

data_delete_alternative = description + type + locked + num_order

User (data store) = {age + gender + education + employment + position + leader + work + life}ⁿ

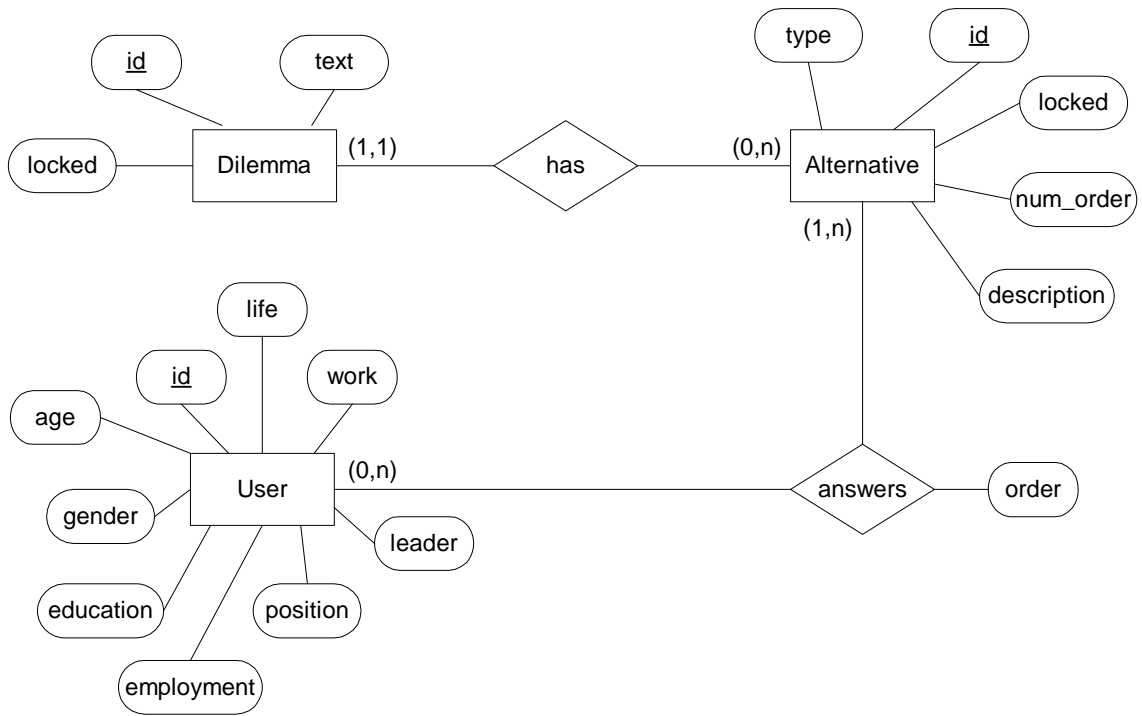
Answer (data store) = {answers}ⁿ

Dilemma (data store) = {text + locked}ⁿ

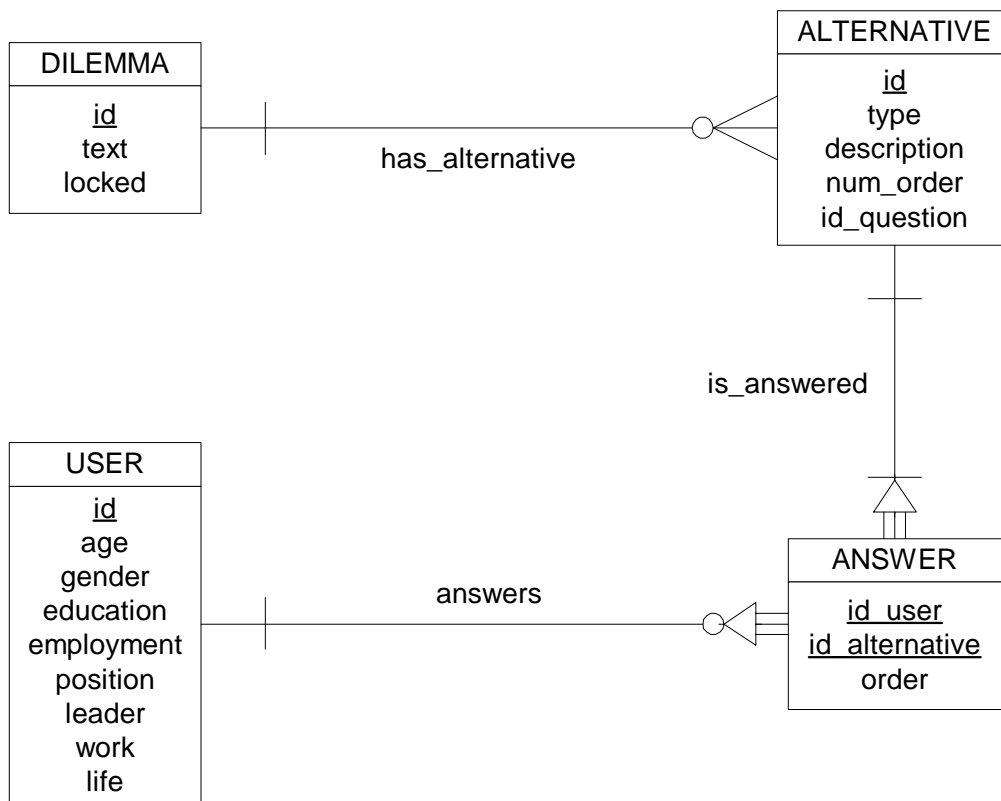
Alternative (data store) = {description + type + locked + num_order}ⁿ

3.2.4. Entity-Relationship Diagram:

The entity-relationship (ER) (Page-Jones, 1980) diagram is a graphical representation of the data layout of a system at a high level of abstraction. It shows the relationship that exists among the stored data of the system. ER diagram gives an easy way to design a database.



The ER diagram can also be seen as the following tables and its relationships:



CONCLUSIONS

In our global changing world, information and communication technologies acquire, more and more, a big importance and increase the number of ethical problems that we can be confronted in our everyday professional as well as in our private life.

It is not the search for answers that is needed but the development of certain skills that can help to cope with the ethical demands in working and business life. The important fact is how people reason in front of a moral problem and not the solutions they give.

It is necessary to acquire, for persons as well as for organizations, high ethical competent skills and confidence in handling all moral problems that may arise.

What our society needs are people with ethical autonomy: an autonomous way of thinking and ethical competence.

Autonomy means a holistic and systematic approach whereas heteronomy means automatic reactions and dogmatic fixations.

An autonomous person considers and analyze critically and systematically all relevant values in a moral problem situation, focus their attention on the concrete moral conflict situation instead of concentrate on the moral values or moral authorities.

Information and communication technologies involve changes that reach all circles of human activities. Their effects are become clear in business activities and education in a special way.

Several researches (Kavathatzopoulos, 2003, 2004) have demonstrated that people can acquire skills to cope moral problems. The use of information and communication technology tools should be used to do special training and facilitate the achievement of ethical competence. What we want to do is to assess the way participants solve ethical problems and make decisions.

There are three important reasons why this project is a technology tool. The first of it is because we are in a changing global world where technology has a very important role and where Internet is the best way of communication. That is why we have a web based questionnaire in order to reach a bigger amount of people. The second reason is that the questionnaire format can be changed more easily by the administrator. And the third and main reason is to go further compared to Kavathatzopoulos & Rigas's paper questionnaire (2006) that has certain limitations regarding the four alternatives per dilemma. We want to be more flexible by using this technology in testing different combinations of alternatives, to test the validity of the different versions.

Several studies in the area of professional ethics have demonstrated that training in decision-making and problem-solving in ethics promotes the acquisition of ethical autonomy skills, which is the base for ethical competence and confidence. The participants have developed a more functional ability to solve ethical problems and formulate ethical rules.

Every time an application or web site is designed usability must be measured, in order to study the users' needs.

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ANNEXES

1. DILEMMAS AND ALTERNATIVES

1. You are a department manager of your bank and you have realized that all the women of your department receive less salary than the men that fulfil the same position. You are considering reporting this to the Human Resources department.

Alternatives for the 4-alternative and the 8-alternative versions:

- Women may get offended if they found out that they receive less salary than men: A
- Women get always offended if they found out that they receive less salary than men: H
- A feminist revolt may not be advisable for the company: A
- A feminist revolt is inadmissible for the company: H
- It is not always possible to be involve in others problems: A
- It is better not to be involve in others problems: H
- It is interesting to watch over men and women interests: A
- All women and men have the same rights: H

Alternatives for the 2-alternative version:

- Women may get offended if they found out that they receive less salary than men, and they may organize a feminist revolt what could not be advisable for the company. Nevertheless it is interesting to watch over men and women interests, but it is not always possible to be involve in others problems: A
- Women get always offended if they found out that they receive less salary than men and they will organize a feminist revolt what is inadmissible for the company. All women and men have the same rights, but it is better not be involve in others problems: H

2. You are an executive of a company and you have promised a loyal employee that has worked in the company many years a category increase when there is a vacancy left. This morning you have interviewed a young man with a great C.V. and experience for the same vacancy. You think that besides he will cost less he will be a great acquisition for the company.

Alternatives for the 4-alternative and the 8-alternative versions:

- The given word must be respected: H
- It may be advisable to respect the given word: A
- We will make him unfortunate (unhappy) if we do not keep our promise: H
- The employee may feel unfortunate if we do not keep our promise: A
- You must look for low costs and high benefits: H
- It may be beneficial to get low costs and high benefits: A
- Faithfulness to the company is over the efficiency (performance): H
- Faithfulness to the company and efficiency are important factors: A

Alternatives for the 2-alternative version:

- The given word must be respected furthermore we will make him unfortunate if we do not keep our promise, because faithfulness to the company is over the efficiency. On the other hand you must look for low costs and high benefits. H
- It may be advisable to respect the given word because the employee may feel unfortunate if we do not keep our promise. Faithfulness to the company and efficiency are important factors. On the other hand it may be beneficial for the company to get low costs and high benefits. A

3. You are an employee of a company and you have discovered that a colleague approaches the boss asking for favours when the boss is in a good mood, something unusual for him. In this way he has obtained some privileges that he would never obtained in another way. You can ask for the same privileges.

Alternatives for the 4-alternative and the 8-alternative versions:

- It is not fair that he obtains more privileges than the rest of employees: H
- It may be damaging that he obtains more privileges than the rest of employees: A
- This kind of privileges will ruin the company: H
- This kind of privileges may not be favourable for the company: A
- You get nothing without asking: H
- Sometimes to demand can turn out useful: A

- Envy is not a good advisor: H
- Envy may be causing your behaviour: A

Alternatives for the 2-alternative version:

- It is not fair that he obtains more privileges than the rest of employees, and this kind of privileges will also ruin the company. However you get nothing without asking, but you have to remember that envy is not a good advisor: H
- It may be damaging that he obtains more privileges than the rest of employees, and furthermore this kind of privileges may not be favourable for the company. Sometimes to demand can turn out useful but envy may be causing your behaviour: A

4. You are an executive of a construction company that has received an offer to build a big shopping mall in a region. For this matter, you must cut down one of the biggest forest of that area, eliminating that way the only green area of the region and you know that the ecologists are against it.

Alternatives for the 4-alternative and the 8-alternative versions:

- We must get the work benefits: H
- The work benefits may be necessary for the company: A
- We must think of the environment: H
- It is important to have in consideration the environment: A
- We must not have problems with the ecologists: H
- It is not convenient for us to have problems with the ecologists: A
- We have to persuade the ecologists: H
- We could persuade the ecologists: A

Alternatives for the 2-alternative version:

- We must get the work benefits, but on the other hand we must think of the environment. We have to persuade the ecologist because the company must not have problems with the ecologists. H
- The work benefits may be necessary for the company, but on the other hand it is important to have in consideration the environment. We could persuade the

ecologists because it is not convenient for the company to have problems with them. A

5. You are an executive of a company and you get into debt because of personal business. Your boss is aware of this subject and he is taking advantage of you by giving you more work that not belong to you knowing that you can not refuse it in this moment.

Alternatives for the 4-alternative and the 8-alternative versions:

- It will slow down my work rate: H
- My work rate may get affected: A

- Take advantage of somebody must not be done: H
- Take advantage of somebody may bring consequences: A

- I must not lose my job: H
- It will be not convenient for me to lose my job: A

- This matter always happens in every job: H
- This matter may happen in every job: A

Alternatives for the 2-alternative version:

- It will slow down my work rate but I must not lose my job, and this matter always happens in every job. Anyhow take advantage of somebody must not be done. H

- My work rate may get affected but it will be not convenient for me to lose my job, and this matter may happen in every job. Anyhow take advantage of somebody may bring consequences. A

6. You are an executive of a company and a colleague offers you some advantages if you do as well as doing your compulsory work some of your colleague's too. You are thinking of reporting those offers to your boss or accepting them and hide this situation.

Alternatives for the 4-alternative and the 8-alternative versions:

- My colleague will be damage if I report it: H
- My colleague may get damage if I report it: A

- Accepting it, the efficiency (performance) of my obligations will decrease: H
- Accepting it, the efficiency of my obligations may decrease: A

- You always have to find personal advantages: H
- It is usually good to find personal advantages: A

- The company must know the kind of workers that work in it: H
- It may be careful for the company to know the kind of workers that work in it: A

Alternatives for the 2-alternative version:

- My colleague will be damage if I report it, but the company must know the kind of workers that work in it. Otherwise you always have to find personal advantages, but accepting it will decrease my efficiency of my obligations. H
- My colleague may get damage if I report it, but it may be careful for the company to know the kind of workers that work in it. Otherwise it is usually good to find personal advantages, but accepting it may decrease my efficiency of my obligations. A

7. You are an executive of a company and the Human Resources director, who is your friend, has confidentially informed you that in the last meeting they have talked of the necessity of doing layoffs. You are considering reporting this to your colleagues so they can start looking for another job or say nothing about it not to create worry.

Alternatives for the 4-alternative and the 8-alternative versions:

- It is a crime (offence) to release confidential information: H
- It may not be convenient to release confidential information: A

- I will create an unjustified alarm in the company with consequences against me: H
- I may create an unjustified alarm in the company with consequences against me: A

- A streamlining is always necessary in a lot of companies: H
- Sometimes a streamlining may be necessary in a lot of companies: A

- I will cause a lot of problems to my friend and he will lose confidence in me: H
- I may cause some problems to my friend and he may lose confidence in me : A

Alternatives for the 2-alternative version:

- It is a crime to release confidential information, furthermore I will create an unjustified alarm in the company with consequences against me and I will cause a lot of problems to my friend and he will lose confidence in me. And a streamlining is always necessary in a lot of companies. H
- It may not be convenient to release confidential information, furthermore I may create an unjustified alarm in the company with consequences against me and I may cause some problems to my friend and he may lose confidence in me. And sometimes a streamlining may be necessary in a lot of companies. A

8. You are an employee of a navy company. You discover evidence that proves that the oil tankers have not passed the legal maintenance inspections, something that is compulsory for this kind of tankers. When you talked about it with your boss he denies the fact, but further investigation on your behalf shows that you are right. You are unsure if you should report it to the authorities and media.

Alternatives for the 4-alternative and the 8-alternative versions:

- If my boss denies it, it is not my responsibility: H
- I should think about the limits of my responsibility: A
- It is illegal not to pass the maintenance inspections: H
- It may be positive to follow the inspections law: A
- We must avoid that a tanker with a breakdown causes an environmental damage: H
- A tanker with a breakdown may cause an environmental damage: A
- Lots of navy companies have not passed the inspections neither: H
- Other companies record may be a risk indicator for us: A

Alternatives for the 2-alternative version:

- It is illegal not to pass the maintenance inspections, but lots of navy companies have not passed them neither. And if my boss denies the fact that we are not doing the legal maintenance inspections, it is not my responsibility. However we must avoid that a tanker with a breakdown causes an environmental damage. H
- It may be positive to follow the inspections law but also other companies records may be a risk indicator for our company. Anyway I should think about the limits

of my responsibility at the company. However a tanker with a breakdown may be the cause of an environmental damage. A

9. You are the town councillor of a region with big parking problems. You have an amount of money that could be inverted in a project. Your party promised the region inhabitants to build an elders centre. You do not know if you should fulfil your promise or should help the urban traffic with a car park.

Alternatives for the 4-alternative and the 8-alternative versions:

- I must fulfil first my electoral promise: H
- It is good to remember the importance of the electoral promise: A
- The car park will mean a lot of votes in the next election: H
- The car park may mean more votes in the next election: A
- Elders and children must be the most important subject for this town council: H
- Elders and children have important necessities for this town council: A
- People will buy another car if they see that is easier to park in town: H
- People may buy another car if they see that is easier to park in town: A

Alternatives for the 2-alternative version:

- I must fulfil first my electoral promise because elders and children must be the most important subject for this town council. Even if the car park will mean a lot of votes in the next election, people will buy another car if they see that is easier to park in town. H
- It is good to remember the importance of the electoral promise because elders and children have important necessities for this town council. Even if the car park may mean more votes in the next election, people may buy another car if they see that is easier to park in town. A

10. You are an executive of a publicity company and by accident have heard about what the client expect for the next publicity campaign. You are one member of the team that will suggest ideas on the subject which gives you an advantage over the others team members. Will you share this information with the other team members?

Alternatives for the 4-alternative and the 8-alternative versions:

- Sharing the information with the team will increase the success probabilities for sure: H
- Sharing the information with the team may increase the success probabilities: A

- My personal promotion must be the most important thing: H
- My personal promotion is important for me and my family: A

- The company success is my goal as an employee: H
- The company success is one of my goals as an employee: A

- It will damage the team relationship: H
- It may affect the team relationship: A

Alternatives for the 2-alternative version:

- The company success is my goal as an employee and sharing the information with the team will increase the success probabilities for sure. On the other hand my personal promotion must be the most important thing, but not sharing the information will damage the team relationship. H
- The company success is one of my goals as an employee and sharing the information with the team may increase the success probabilities. On the other hand my personal promotion is important for me and my family, but not sharing the information may affect the team relationship. A

11. You are the C.E.O. of a publicity company. You have heard how your best employee tells a colleague, member of another team, wrong information about the project objectives that both teams are preparing. This employee has always carried good ideas for the company giving high profits.

Alternatives for the 4-alternative and the 8-alternative versions:

- He will get upset if he found out that I have heard him: H
- His reaction if he found out that I have heard him may be anger: A

- This mistake will make worse the team working: H
- This mistake may affect the team working: A

- Mistakes are not something that good employees do: H
- Even if he is a good employee, he could make mistakes that we have to question: A

- Information is the key of the company success: H

- Information is something important for the company success: A

Alternatives for the 2-alternative version:

- My best employee will get upset if he found out that I have heard him, but I have to remember that information is the key of the company success and this mistake will make worse the team working, because mistakes are not something that good employees do. H
- My best employee's reaction if he found out that I have heard him may be anger, but information is something important for the company success. Even if he is a good employee, he could make mistakes that we have to question, because this mistake may affect the team working. A

12. You are the sales manager of a clothes company. The factory has had problems with the machines and there were a lot of damage products that the company must sell as soon as possible. Instead of sell them with a low price, the production manager has decided hide them with the good quality ones. You have to decide if you agree or not with that decision.

Alternatives for the 4-alternative and the 8-alternative versions:

- It is not advisable to cheat costumers: H
- Costumers may feel cheated: A
- I must not be against the production manager: H
- To be against the production manager may bring me some consequences: A
- The company should not allow to let a good launch for this kind of products go: H
- To find out a good launch for this kind of products might be beneficial for the company: A
- The company must not wait any longer: H
- The company may not afford to wait any longer: A

Alternatives for the 2-alternative version:

- The company should not allow to let a good launch for this kind of products go, but the company must not wait any longer. I must not be against the production manager although it is not advisable to cheat costumers. H

- To find out a good launch for this kind of products might be beneficial for the company, but the company may not afford to wait any longer. To be against the production manager may bring me some consequences although costumers may feel cheated. A

13. You are the C.E.O. of a bank that works with trust funds and you discover that one of the oldest and most trusted employees in the company uses confidential information from his job to benefit his acquaintance. He is one of the bank's employees that supply most of the benefits. Will you press charges or discretely settle the matter with him?

Alternatives for the 4-alternative and the 8-alternative versions:

- Privilege information must be confidential: H
- It should be good deal privilege information in a confidential way: A
- The bank's good reputation will be harm: H
- It may be necessary to protect the bank's reputation: A
- We must not lose this employee's benefits: H
- It may not be advisable lose this employee's benefits: A
- He has betrayed the bank's confidence: H
- His behaviour may be seen as a betrayal: A

Alternatives for the 2-alternative version:

- Privilege information must be confidential and he has betrayed the bank's confidence but the bank's good reputation will be harm and we must not lose this employee's benefits. H
- It should be good deal privilege information in a confidential way. His behaviour may be seen as a betrayal but it may not be advisable lose this employee's benefits and it may be necessary to protect the bank's reputation. A

14. You are an executive of a family company and you have noticed that one of your colleagues verbally harassment his secretary. That employee is one of the boss relatives and you know that several similar problems with him have been ignored before. Will you press charges against him or ignore the subject not to have problems with the family?

Alternatives for the 4-alternative and the 8-alternative versions:

- I may lose my job: A
- Press charges against him mean to lose my job: H

- This situation may cause legal problems to the company and may give it a bad reputation: A
- To reveal this situation will cause legal problems to the company and will give it a bad reputation: H

- It may be convenient to respect personal integrity: A
- You must respect personal integrity: H

- I may feel disloyal with my colleague: A
- I will never forgive myself for being disloyal with my colleague: H

Alternatives for the 2-alternative version:

- To reveal this situation will cause legal problems to the company and will give it a bad reputation, that is why I will lose my job. I will never forgive myself for being disloyal with my colleague but we must respect personal integrity: H
- This situation may cause legal problems to the company and may give it a bad reputation so I may lose my job. I may feel disloyal with my colleague but it may be convenient to respect personal integrity. A

15. You are the C.E.O of your company and have, as every employee, a company mobile phone. The company's policy is against using those mobile phones for private use, but you know that an employee, who has health problems, use it for his medical appointments. You are considering asking him for paying his settlement.

Alternatives for the 4-alternative and the 8-alternative versions:

- Everybody has to follow the company policy: H
- In a specific and justify situation the company might do exceptions: A

- You must control the use of the company mobile phone: H
- It is complicated to control the use of the company mobile phone: A

- Even low costs must not be afforded if they are unnecessary for the company: H
- This kind of expenses would involve a low cost that the company could afford: A

- Today concessions will become exigencies tomorrow: H
- This kind of concessions may turn out in an exigency that could not be fulfilled: A

Alternatives for the 2-alternative version:

- Everybody has to follow the company policy that says that everyone must control the use of the company mobile phone. Even low costs must not be afforded if they are unnecessary for the company, because today concessions will become exigencies tomorrow. H
- In a specific and justify situation the company might do exceptions because this kind of expenses would involve a low cost that the company could afford. It is also complicated to control the use of the company mobile phone. But this kind of concessions may turn out in an exigency that could not be fulfilled. A

16. You are an executive of a company that is located in an urban area where there are scarce parking spaces for its employees. In the company there has been imposed the rule where the employees use their cars only in alternate days. But you have heard about one employee, the boss's son, brings his car to work every day. You do not know if rebuke him or ignore the problem.

Alternatives for the 4-alternative and the 8-alternative versions:

- Company's rules must be obeyed by everybody without exception: H
- It may be convenient that company's rules were obeyed: A
- There will be conflicts between workers: H
- There may be conflicts between workers: A
- The boss relatives have the right to ignore the rules: H
- The boss relatives usually ignore some rules: A
- The boss will be angry with me: H
- The boss may be angry with me: A

Alternatives for the 2-alternative version:

- Company's rules must be obeyed by everybody without exception otherwise there will be conflicts between workers. But if I rebuke this employee the boss will be angry with me because the boss relatives have the right to ignore the rules. H

- It may be convenient that company's rules were obeyed by everybody otherwise there may be conflicts between workers. But if I rebuke this employee the boss may be angry with me because the boss relatives usually ignore some rules. A

17. You are the town councillor of a region with big amount of cars and parking problems. To solve it you want to impose parking meters in the whole town. But you have noticed that there are some areas in town that do not have this problem. You are considering applying this rule without exception or making an exception with those districts.

Alternatives for the 4-alternative and the 8-alternative versions:

- We must apply the rule in the whole town: H
- It may be easy to apply the rule in the whole town: A

- We have to consider each case separately: H
- It may be convenient to consider each case separately: A

- We must prevent revolts from the citizens of those districts against the party: H
- It may not be good for the party to have revolts from the citizens of those districts: A

- Parking meters are a solution whatever it is the situation: H
- Parking meters may be also a solution in this situation: A

Alternatives for the 2-alternative version:

- We must apply the rule in the whole town because parking meters are a solution whatever it is the situation. On the other hand we must prevent revolts from the citizens of those districts against the party so we have to consider each case separately. H

- It may be easy to apply the rule in the whole town because parking meters may be also a solution in this situation. On the other hand it may not be good for the party to have revolts from the citizens of those districts so it may be convenient to consider each case separately. A

18. You are the C.E.O. of a small paper company and you have received a tempting offer to sell it to a corporation, but you know that all your employees will be replaced by employees of the corporation to practise their same positions. You are considering accepting the offer.

Alternatives for the 4-alternative and the 8-alternative versions:

- Business is business: H
- Business may not be favourable for everybody: A
- People must be more important than money: H
- People may be a value as important as money: A
- It will damage and hurt a lot of people: H
- It may damage and hurt a lot of people: A
- It will be favourable for my economy in the future: H
- It may give me an economy advantage in the future: A

Alternatives for the 2-alternative version:

- Business is business and it will be favourable for my economy in the future. But people must be more important than money and if I accept the offer it will damage and hurt a lot of people. H
- Business may not be favourable for everybody and it may give me an economy advantage in the future. But people may be a value as important as money and if I accept the offer it may damage and hurt a lot of people. A

19. You are the C.E.O. of a furniture multinational company that has the policy not to use wood of tropical forests. Lately you have been informed that your friend, responsible of the production materials of one of the branches, is buying wood from those forests. Will you confidentially settle the matter with him or take him to the management?

Alternatives for the 4-alternative and the 8-alternative versions:

- You must not betray your friends: H
- Friendship is something important for you: A
- The company's policy must be defended always: H
- It may be necessary to follow the company's policy: A
- I will have a lot of problems with my friend if I betray him: H
- I may have some problems with my friend if I betray him: A
- The management must know what it is going on within the company: H

- It may be convenient that the management knows what it is going on within the company: A

Alternatives for the 2-alternative version:

- You must not betray your friends and if you betray him you will have a lot of problems with him. Otherwise the company's policy must be defended always and the management must know what it is going on within the company. H
- Friendship is something important for you and you may have some problems with your friend if you betray him. Otherwise it may be necessary to follow the company's policy and it may be convenient that the management knows what it is going on within the company: A

20. You work as an executive in a company where a colleague usually uses his e-mail to internally spread web pages with high pornographic content. Everybody else takes it as a joke but you are seriously considering talking with the management about it.

Alternatives for the 4-alternative and the 8-alternative versions:

- Pornography, even as a joke, must be punished: H
- Pornography and its circulation may be punished: A
- The management must know what it is going on within the company: H
- It may be favourable that the management knows what it is going on within the company: A
- If everybody takes it as a joke and I report it I will be ignore by the team: H
- If everybody takes it as a joke and I report it I may be dropout from the team: A
- I must never betray a colleague: H
- It is not convenient to betray a colleague: A

Alternatives for the 2-alternative version:

- Pornography, even as a joke, must be punished and the management must know what it is going on within the company. Otherwise I must never betray a colleague and if everybody takes it as a joke and I report it I will be ignore by the team. H

- Pornography and its circulation may be punished and it may be favourable that the management knows what it is going on within the company. Otherwise it is not convenient to betray a colleague because if everybody takes it as a joke and I report it I may be dropout from the team. A

21. You are an executive of a company and you have heard a colleague for months complaining about mobbing on behalf of the boss. You can not confront him because he would fire you. You are unsure if you should report this to the appropriate authorities or send him an anonymous message.

Alternatives for the 4-alternative and the 8-alternative versions:

- My colleague should do it on its own: H
- It may be good that my colleague do on its own: A
- To report it without suffering on my own is very risky, she would have got him wrong: H
- To report it without suffering on my own may be very risky, she may have got him wrong: A
- Report him is the most appropriate thing what is due to the company's policy: H
- Report him may be appropriate due to the company's policy: A
- I will create a bad reputation for the company: H
- It can result in bad reputation for the company: A

Alternatives for the 2-alternative version:

- Report him is the most appropriate thing what is due to the company's policy but I will create a bad reputation for it. And to report it without suffering on my own is very risky, she would have got him wrong, and if not my colleague should do it on its own. H
- Report him may be appropriate due to the company's policy but it can result in bad reputation for the company. And to report it without suffering on my own may be very risky, she may have got him wrong and if not it may be good that my colleague do on its own. A

22. You are the Personal Resources chief of a conservative banking company. Every Friday, day that everybody can wear casual clothes, a worker that has no treat with clients, usually wears mini leather skirts and transparent shirts. You have already privately mentioned it to her several times but she does not change

her clothing. There have been quite a lot of problems with male chauvinist attitudes within the company and you are afraid that a rebuke will make things worse.

Alternatives for the 4-alternative and the 8-alternative versions:

- Any incorrect action deserve a rebuke: H
- Any incorrect action may get a rebuke: A

- Rebukes must be avoided due to male chauvinist attitudes: H
- It may be convenient to avoid rebukes due to male chauvinist attitudes: A

- Since the client is not involved, the dress style is not important: H
- Since the client is not involved, the dress style may not be so significant: A

- To achieve a good company image all the details related with the employees must be watched: H
- To achieve a good company image it may be convenient to watch certain details related with the employees: A

Alternatives for the 2-alternative version:

- To achieve a good company image all the details related with the employees must be watched therefore any incorrect action deserve a rebuke. On the other hand since the client is not involved, the dress style is not important but rebukes must be avoided due to male chauvinist attitudes. H

- To achieve a good company image it may be convenient to watch certain details related with the employees therefore any incorrect action may get a rebuke. On the other hand since the client is not involved, the dress style may not be so significant but it may be convenient to avoid rebukes due to male chauvinist attitudes. A

23. You are the C.E.O of a marketing company and a group of employees have requested the creation of a smoker room in the building where they work. You know that they have to go out of the building to smoke and the neighbourhood is quite dangerous. The anti-smoking law has planned to forbid this kind of rooms in the future. You are considering satisfying your employees demand.

Alternatives for the 4-alternative and the 8-alternative versions:

- People security must be the most important thing: H
- People security is an aspect to consider: A

- The company will not risk a low productivity caused by dissatisfied employees: H
- Dissatisfied employees may reduce their productivity: A
- It is useless to invest in the smoker's room for such a short term: H
- It may not be profitable to do the smoker's room for such a short term: A
- Smoker's employees must not have more privileges than the non-smoker's employees: H
- Non-smokers may consider that smokers have more privileges: A

Alternatives for the 2-alternative version:

- People security must be the most important thing and also the company will not risk a low productivity caused by dissatisfied employees. However, it is useless to invest in the smoker's room for such a short term, and smoker's employees must not have more privileges than the non-smokers employees. H
- People security is an aspect to consider and also dissatisfied employees may reduce their productivity however it may not be profitable to do the smoker's room for such a short term. And non-smokers may consider that smokers have more privileges. A

24. You are a candidate selector for a commercial job in an electrical appliance company. The candidate profile, given by the department chief that is going to hire him, stand out the necessity of being a man and not a woman. You are surprised with this requirement and you do not know if you must take it into account.

Alternatives for the 4-alternative and the 8-alternative versions:

- To respect the equity principle is our priority: H
- It may be considered as a lack of equity principle: A
- Keeping my position is my priority and to disagree with the boss is too risky: H
- My future in the company may be damage because disagree with the boss may be a risk: A
- There are certain jobs that finally, must be done only by men: H
- There are certain jobs that could be done more comfortable by men: A
- The candidate must be the most suitable for the job: H
- It is important to choose the candidate most suitable for the job: A

Alternatives for the 2-alternative version:

- To respect the equity principle is our priority and the candidate must be the most suitable for the job. But keeping my position is my priority and to disagree with the boss is too risky, anyway there are certain jobs that finally, must be done only by men. H
- It may be considered as a lack of equity principle and it is important to choose the candidate most suitable for the job. Anyway there are certain jobs that could be done more comfortable by men. And my future in the company may be damage because disagree with the boss may be a risk. A

25. You are the C.E.O. of a company in charge of organizing international events and congresses. One of your best public relations officers asks you to coordinate an event where royal celebrities will participate. Because of being a classic ceremony you do not know if it is a good idea to nominate this employee because he is a gay quite mannered.

Alternatives for the 4-alternative and the 8-alternative versions:

- It is discrimination of a group of people: H
- It may be considered as a discrimination act: A
- The coordinator's quality takes priority over the appearance: H
- His efficiency may be valued moreover his appearance: A
- He will give a different and innovative touch: H
- He may give a different and innovative touch to this kind of event so predictable: A
- The company must not tolerate unexpected surprises: H
- Unexpected surprises may be avoided: A

Alternatives for the 2-alternative version:

- It is discrimination of a group of people and the coordinator's quality takes priority over the appearance. The company must not tolerate unexpected surprises but on the other hand he will give a different and innovative touch. H
- It may be considered as a discrimination act and his efficiency may be valued moreover his appearance. Unexpected surprises may be avoided but on the other

hand he may give a different and innovative touch to this kind of event so predictable. A

26. You are an executive of a medical company dedicated to rehabilitation of cerebral damage and two of your best colleagues mutually swap their cards to clock in when they arrive late. One day when both of them can not be on time they ask you to do it for them.

Alternatives for the 4-alternative and the 8-alternative versions:

- It s illegal: H
- It may not be convenient to disobey the law: A
- I am risking my future in the company: H
- It may be a risk for my future in the company: A
- Companionship is the top priority: H
- I may cause a rift between my colleagues: A
- The patient attention will be damage: H
- The patient attention may be damaged: A

Alternatives for the 2-alternative version:

- It is illegal furthermore I am risking my future in the company and the patient attention will be damage. On the other hand companionship is the top priority. H
- It may not be convenient to disobey the law furthermore it may be a risk for my future in the company and the patient attention may be damaged. On the other hand I may cause a rift between my colleagues: A

27. You are the department manager within a company and you are carrying out a selection process for a new position. The personnel manager talks about a friend's candidacy whom has no experience in this position but fits the profile. When you read the final report of each candidate, you identify that the personnel manager's friend's report is positive exaggerated in her favour. Will you do it as a favour for the personnel manager or you will ask him to check the reports?

Alternatives for the 4-alternative and the 8-alternative versions:

- It is necessary to please the personnel manager: H
- It may be convenient to please the personnel manager: A

- The candidate must be the most suitable: H
- It may be beneficial for the company the most suitable candidate: A
- I will lose my job or I will be penalized if my superiors heard about it: H
- I run the risk of losing my job or being penalized if my superiors heard about it: A
- A favour today will give me advantages tomorrow: H
- Favours may be rewarded: A

Alternatives for the 2-alternative version:

- It is necessary to please the personnel manager and a favour today will give me advantages tomorrow. But the candidate must be the most suitable and I will lose my job or I will be penalized if my superiors heard about it. H
- It may be convenient to please the personnel manager and favours may be rewarded. But it may be beneficial for the company the most suitable candidate and I run the risk of losing my job or being penalized if my superiors heard about it. A

28. You are the C.E.O. of a food products company. You have been working in this company many years and some of your colleagues are good friends of you. It has come up a new and very important client that needs a person dedicated to him, with a position very well-paid out of the normal salary. One of your closest colleagues needs that extra money and you could give this job to him without thinking of it twice.

Alternatives for the 4-alternative and the 8-alternative versions:

- Helping friends is better than giving the opportunity to strangers: H
- The friendship grade may be valued when it comes down to offer help: A
- Jobs must be given to people with the highest merits: H
- It is good for the company to give jobs to people with the highest merits: A
- If you help the employees you will win their trust and respect: H
- Helping employees that needs it may give you their trust and respect: A
- Clients must received the most qualified personal without taking into account the friendship: H

- It is advisable for the company to offer the most qualified personal to its clients:
A

Alternatives for the 2-alternative version:

- Jobs must be given to people with the highest merits because clients must received the most qualified personal without taking into account the friendship. But helping friends is better than giving the opportunity to strangers and if you help the employees you will win their trust and respect. H
- It is good for the company to give jobs to people with the highest merits and to offer the most qualified personal to its clients. The friendship grade may be valued when it comes down to offer help and helping employees that needs it may give you their trust and respect.

29. You are the C.E.O. and owner of a small consultancy of risks prevention. The company went bankrupt and you hired a financial director to reorganize de economy. To persuade him to accept the job you verbally agree a commission contract if you achieve to sell the company. You have found a possible purchaser that offers you a smaller amount of money than you have thought. You are considering reducing the commission percentage you offer to the financial director.

Alternatives for the 4-alternative and the 8-alternative versions:

- I have to keep my word: H
- It may be convenient to keep my word: A
- To obtain good reputation is the most important thing: H
- To obtain good reputation may be advisable: A
- He will get upset and will bring me out a lot of problems: H
- He may get upset and may bring me out a lot of problems: A
- Business is business: H
- I may see if it affects the business: A

Alternatives for the 2-alternative version:

- I have to keep my word because to obtain good reputation is the most important thing. He will get upset and will bring me out a lot of problems but business is business. H

- It may be convenient to keep my word because to obtain good reputation may be advisable. He may get upset and may bring me out a lot of problems and I may see if it affects the business. A

30. You are the customer service manager of a mobile phones company and you are in charge of a group of telephone operators. You receive an order from your superiors to fire one of your telephone operators because he dresses in an untidy way and he has long hair. You know that his attire is not very nice but he is one of your best employees.

Alternatives for the 4-alternative and the 8-alternative versions:

- The physical appearance must be valued over all: H
- The attire may not influence in the client satisfaction: A
- To obey the superior's orders is the policy of the company: H
- It may be advisable to obey the superior's orders: A
- You must respect personal integrity: H
- Personal integrity is an important factor: A
- We must not lose such a competent employee: H
- It is not convenient to lose such a competent employee: A

Alternatives for the 2-alternative version:

- The physical appearance must be valued over all anyway to obey the superior's orders is the policy of the company. But we must not lose such a competent employee and we must respect personal integrity. H
- The attire may not influence in the client satisfaction and personal integrity is an important factor but it may be advisable to obey the superior's orders. But it is not convenient for the company to lose such a competent employee. A

31. You are the C.E.O. of a movie theatre company and in one of your visits to one of the auditoriums you discover because of a conversation between technical experts that there are showing subliminal messages in spots before showing the film. The technicians receive benefits for it from the brand and they have not communicated their action. You are considering talking to them to solve this problem.

Alternatives for the 4-alternative and the 8-alternative versions:

- Subliminal messages must never be allow: H
- It is not advisable to allow subliminal messages: A
- The best policy is to pretend ignorance and avoid problems: H
- Sometimes is better to pretend ignorance to avoid conflicts: A
- Personal must be allowed to achieve the more benefits they can in order to work better: H
- Workers may work better if those benefits are allowed to them: H
- If this is discovered the company will have legal problems: H
- If this is discovered the company may have legal problems: A

Alternatives for the 2-alternative version:

- Subliminal messages must never be allow but personal must be allowed to achieve the more benefits they can in order to work better. Anyway the best policy is to pretend ignorance and avoid problems, but if this is discovered the company will have legal problems. H
- It is not advisable to allow subliminal messages but workers may work better if those benefits are allowed to them. Even if this is discovered the company may have legal problems sometimes is better to pretend ignorance to avoid conflicts. A

32. You are the C.E.O. of a financial consultant company and one of your employees asks you for a reduction of his working day because of fatherhood. You do not want to lose this employee because you need him full time. You are considering threatening him so that if he asks you for his reduction you will reduce his salary.

Alternatives for the 4-alternative and the 8-alternative versions:

- Threatening him will provoke his escape: H
- Threatening him may provoke his escape: A
- We must accept his request because it is legal: H
- It may be convenient to check the laws to see if it is legal: A
- It will make a loss for the company: H
- It may turn into capital loss for the company: A

- The company must not lose that employee: H
- The company can not afford to lose that employee: A

Alternatives for the 2-alternative version:

- We must accept his request because it is legal even if it will make a loss for the company. And threatening him will provoke his escape and the company must not lose that employee. H
- It may be convenient to check the laws to see if it is legal because if you accept his reduction it may turn into capital loss for the company. Threatening him may provoke his escape and the company can not afford to lose that employee. A

33. You are the C.E.O. of a car company and you have the suspicion that when you go out before closing your employees decrease their efficiency those hours and do not work. You have been suggest to put a security camera in each floor to check it without inform your employees.

Alternatives for the 4-alternative and the 8-alternative versions:

- The company must not suffer a low productivity: H
- It is not good for the company a productivity descent: A
- If the employees find it out they will bring a lawsuit against the company: H
- If the employees find it out they may bring a lawsuit against the company: A
- To establish a good relationship with the employees is essential: H
- A good relationship with the employees may be very convenient: A
- The use of means of control which invade people intimacy is inadmissible: H
- I may not invade people intimacy by means of control. A

Alternatives for the 2-alternative version:

- The company must not suffer a low productivity but the use of means of control which invade people intimacy is inadmissible and if the employees find it out they will bring a lawsuit against the company. Furthermore, to establish a good relationship with the employees is essential. H
- It is not good for the company a productivity descent but I may not invade people intimacy by means of control and if the employees find it out they may

bring a lawsuit against the company. Furthermore a good relationship with the employees may be very convenient. A

34. You are the C.E.O. of a logistic company and you have called all the intermediate commands to participate in an evaluation based on attitude tests. All those executives have been working more than three years in the company and you find out that the application of those tests is not appropriate for a category rise in those conditions. You may continue if no-one complain.

Alternatives for the 4-alternative and the 8-alternative versions:

- If someone complains you will make a fool of yourself: H
- If someone complains you may look foolish: A
- The tests must be appropriate and they must not be done if they are not: H
- It may be good that the tests are appropriate to be done: A
- The company's image must not be damaged: H
- It may not be convenient to damage the company's image: A
- If no-one complains, things must continue as they are: H
- If no-one complains, things may continue as they are: A

Alternatives for the 2-alternative version:

- If someone complains you will make a fool of yourself and the company's image must not be damaged because of you. The tests must be appropriate and they must not be done if they are not but if no-one complains, things must continue as they are. H
- If someone complains you may look foolish and it may not be convenient to damage the company's image. It may be good that the tests are appropriate to be done but if no-one complains, things may continue as they are. A

35. You are the C.E.O. of a company and you have been commissioned to do a favourable or unfavourable report of five employees for a promotion. About one of them, because he is by change your neighbour, you know something about his private life, he has alcohol problems. You know the importance of the promotion and you hesitate if you should write this information in the report.

Alternatives for the 4-alternative and the 8-alternative versions:

- Not to write that information will damage the company in the future: H
- Not to write that information may damage the company in the future: A

- To do a favourable report knowing this is not admissible: H
- To do a favourable report knowing this may not be advisable for the company: A

- It is confidential information that you do not have to deal with: H
- May be it may not be a good idea to use that information because it is confidential: A

- It has no reason to affect his job: H
- Until now it has no affected his job: A

Alternatives for the 2-alternative version:

- It is confidential information that you do not have to deal with and it has no reason to affect his job. Although not to write that information will damage the company in the future and to do a favourable report knowing this is not admissible. H
- May be it may not be a good idea to use that information because it is confidential and until now it has no affected his job. Although not to write that information may damage the company in the future and to do a favourable report knowing this may not be advisable. A

36. You are an executive of a company and you need some data to do a report urgently. A colleague has that data in his e-mail but now he is attending a meeting. You approach to his computer and you realize that he has his e-mail minimized. You know the importance for the company to have this report today.

Alternatives for the 4-alternative and the 8-alternative versions:

- The right to privacy is a human right: H
- It may be convenient to respect the right to privacy: A

- That report must be done without delay: H
- It is important for the company to have that report as soon as possible: A

- You must not lose your colleagues confidence: H
- It is good that your colleagues do not lose confidence in you: A

- That action will surely be forgiven because of the report urgency: H

- The report urgency may forgive that action: A

Alternatives for the 2-alternative version:

- The right to privacy is a human right and you must not lose your colleagues confidence. But that action will surely be forgiven because of the report urgency and the report must be done without delay. H
- It may be convenient to respect the right to privacy and it is good that your colleagues do not lose confidence in you. On the other hand it is important for the company to have that report as soon as possible and the report urgency may forgive that action. A

37. You are the C.E.O. of an editorial company and you read an employee's article and you have realized that some sentences sound familiar to you, and you corroborate your suspicions finding those sentences in an article in Internet. The publication must be done immediately and to delay that article means to lose the publication.

Alternatives for the 4-alternative and the 8-alternative versions:

- The publication must come out on time and nothing is so important: H
- It may be good to have the publication on time: A
- We will be accused of plagiarism: H
- An accusation of plagiarism may not be convenient for the company: A
- To respect the author rights is an obligation: H
- The author rights may be a problem: A
- Everybody copies: H
- Everybody may be tempted to copy: A

Alternatives for the 2-alternative version:

- The publication must come out on time and nothing is so important even if to respect the author rights is an obligation. We will be accused of plagiarism but everybody copies. H
- It may be good to have the publication on time but the author rights may be a problem. An accusation of plagiarism may not be convenient for the company but everybody may be tempted to copy. A

38. You are a department technician employee from a company. A colleague asks you to provide him a computer programme to spread some compromising pictures of the boss, so that they appear in every computer of your department colleagues when they are turned on.

Alternatives for the 4-alternative and the 8-alternative versions:

- You must respect personal privacy: H
- Something may be done to respect personal privacy: A

- You will have a lot of problems and you will lose your job: H
- You may have some problems, even with your job: A

- The information diffusion must be abided by some rules: H
- The information diffusion may be advisable to be abided by some rules: A

- You will lose the confidence and good relationship with my colleagues: H
- You may consider the idea of helping your colleague: A

Alternatives for the 2-alternative version:

- You must respect personal privacy and the information diffusion must be abided by some rules. If you help your friend you will lose the confidence and good relationship with my colleagues, but also you will have a lot of problems with your boss and you will lose your job. H

- Something may be done to respect personal privacy and the information diffusion may be advisable to be abided by some rules. You may consider the idea of helping your colleague not to have problems with him but you may have some problems with your boss, even with your job. A

39. You are an executive of a company and your boss asks you to replace yourself as a client of a competitor company via e-mail to obtain some information that you will not achieve other way. To mislead about your identity is against the law but you would be following your boss's order.

Alternatives for the 4-alternative and the 8-alternative versions:

- To mislead about your identity is against the law: H
- You may consider fulfil the law: A

- You must obey your boss's orders: H
- It may be a risk not to obey what your boss says: A

- You will gain time doing it that way: H
- It may be a way to gain time: A

- You have to obtain that information anyhow: H
- To obtain that information may be very beneficial: A

Alternatives for the 2-alternative version:

- You must obey your boss's orders even although misleading about your identity is against the law. You have to obtain that information anyhow and you will gain time doing it that way. H
- It may be a risk not to obey what your boss says even although you may consider fulfil the law. To obtain that information may be very beneficial and it may be a way to gain time. A

40. You are an executive of a company and you have seen how your colleagues download some programs in their company computers taking advantages of the broad band to obtain films and other things. The company has forgotten the installation of those programs, but you are considering doing the same thing.

Alternatives for the 4-alternative and the 8-alternative versions:

- Computer piracy is against the law: H
- It may be computer piracy: A

- My attention and productivity at work will be reduced: H
- My attention and productivity at work may be reduced: A

- Everyone has the temptation to do it: H
- It is an extended practise that has a lot of users: A

- The company will have problems and it will take reprisals: H
- The company may have some problems and it may take reprisals: A

Alternatives for the 2-alternative version:

- Computer piracy is against the law therefore the company will have problems and it will take reprisals. Anyway it is an extended practise that has a lot of users but if I do it my attention and productivity at work will be reduced. H
- It may be computer piracy so the company may have some problems and it may take reprisals. Anyway everyone has the temptation to do it but if a do it my attention and productivity at work may be reduced. A

41. You are an employee of a consultancy company and you work two days a week at home being controlled by your boss by a chat messages that you are forced to be connected during your work hours. You have to go out to solve some personal subjects and you are considering leaving your wife answering those messages.

Alternatives for the 4-alternative and the 8-alternative versions:

- I will lose my job: H
- I may put at risk my job: A
- It is a behaviour that must be controlled: H
- That behaviour may be more controlled: A
- I must follow the company's policy: H
- It may be convenient to follow the company's policy: A
- I will lose my boss's confidence: H
- I may put a risk my boss's confidence: A

Alternatives for the 2-alternative version:

- I must follow the company's policy because I will lose my job and also my boss's confidence. That is why it is a behaviour that must be controlled. H
- It may be convenient to follow the company's policy because I may put at risk my job and also my boss's confidence. That is why that behaviour may be more controlled. A

42. You are a department technician employee from a company and your boss asks you to install some software in the company's computers that detects if employees are using the company's mail for personal subjects. You know that you have to ask them for their consent but if you do it that would invalidate your verification.

Alternatives for the 4-alternative and the 8-alternative versions:

- The company must know if this abuse is made: H
- It may be convenient for the company to know if this abuse is made: A

- It is an attempt against privacy and freedom of the company employees: H
- It may be consider by someone as an attempt against privacy and freedom of the company employees: A

- If it is informed it will be dissatisfaction among employees: H
- If it is informed it may take place dissatisfaction among employees: A

- I must follow my boss's orders: H
- It may be good to follow my boss's orders: A

Alternatives for the 2-alternative version:

- The company must know if this abuse is made and also I must follow my boss's orders. But if it is informed it will be dissatisfaction among employees because it is an attempt against privacy and freedom of the company employees. H

- It may be convenient for the company to know if this abuse is made and also it may be good to follow my boss's orders. But if it is informed it may take place dissatisfaction among employees because it may be consider by someone as an attempt against privacy and freedom of the company employees. A

43. You are an executive of a company that has been provided with a password for downloading payment software from intranet that the company offers free for his employees. You know that it is very easy to give that password to some acquaintance so that he can also enjoy those advantages, although the company forbids it.

Alternatives for the 4-alternative and the 8-alternative versions:

- The company's policy must be severity fulfilled: H
- The company's policy may be fulfilled: A

- Friendship is more important than the company's policy: H
- I may do some friend a favour: A

- The greatest number of people must enjoy from this benefit: H
- A greater number of people may enjoy from this benefit: A

- It is a betrayal to my company so I will lose my job: H

- It may be consider as a betrayal to the company and I may lose my job: A

Alternatives for the 2-alternative version:

- The company's policy must be severity fulfilled because it is a betrayal to my company so I will lose my job. Anyhow friendship is more important than the company's policy and the greatest number of people must enjoy from this benefit. H
- The company's policy may be fulfilled because it may be consider as a betrayal to the company and I may lose my job. Anyhow I may do some friend a favour because a greater number of people may enjoy from this benefit. A

44. You are the C.E.O. of a company and you suspect that a lot of your employees use the company's Internet to see pornographic web sides. You know that you can not control your employees without their consent but you are considering installing software (spyware) that controls the web sites that your employees visit.

Alternatives for the 4-alternative and the 8-alternative versions:

- That activity seriously damages the company's profitability: H
- That activity may damage the company's profitability: A
- You must not create an unpleasant situation for the employees: H
- You do not need to create an unpleasant situation for the employees: A
- You must respect personal integrity: H
- It may be convenient not to attempt against personal integrity: A
- You must not do it without their consent: H
- It may be not advisable to do it without their consent: A

Alternatives for the 2-alternative version:

- You must respect personal integrity and also that activity seriously damages the company's profitability. But you must not do it without their consent because you must not create an unpleasant situation for the employees. H
- It may be convenient not to attempt against personal integrity and also that activity may damage the company's profitability. But it may be not advisable to do it without their consent because you do not need to create an unpleasant situation for the employees. A

45. You are the C.E.O. of a company and you are doing a marketing campaign based on discussion groups about some products. You have gathered together a group of 10 people as volunteers and you want to send them an e-mail with all their telephone numbers and addresses so they can get in touch to go together to the meeting place, because it is far away from the city centre. One of them does not know that this mail will be sent and you do not know whether you include in the e-mail his personal data or not, because that person only gave them to you.

Alternatives for the 4-alternative and the 8-alternative versions:

- To publish his personal data without his consent will cause without a question his anger: H
- To publish his personal data without his consent may cause his anger: A
- You never have to betray someone's confidence: H
- It is not good to betray someone's confidence: A
- Everyone that is involved has the right to know the same information: H
- It may be achieved that everyone that is involved knows the same information: A
- Privacy is the most important thing: H
- They may not want to reveal their personal data: A

Alternatives for the 2-alternative version:

- Privacy is the most important thing that is why to publish his personal data without his consent will cause without a question his anger. You never have to betray someone's confidence but everyone that is involved has the right to know the same information. H
- They may not want to reveal their personal data therefore to publish his personal data without his consent may cause his anger. It is not good to betray someone's confidence but it may be achieved that everyone that is involved knows the same information. A

46. You are the technical department manager from a company and you are waiting to receive some software that the company would buy to carry out projects reports more easily. Your boss gives you piracy software and asks you to install it in the company's computers.

Alternatives for the 4-alternative and the 8-alternative versions:

- You must obey the law: H
- You are considering having a look at what the law says about it: A

- The potential fine will be higher than paying for the software: H
- The potential fine may be higher than paying for the software: A

- The company must save money anyhow: H
- Any saving for the company may be convenient: A

- This kind of action will promote the lax moral day by day within the company: H
- This kind of action may promote the lax moral day by day life within the company: A

Alternatives for the 2-alternative version:

- You must obey the law because that kind of action will promote the lax moral day by day within the company. The company must save money anyhow but if you install this piracy software the potential fine will be higher than paying for the software. H
- You are considering having a look at what the law says about it and that kind of action may promote the lax moral day by day life within the company. Any saving for the company may be convenient but if you install this piracy software the potential fine may be higher than paying for the software. A

47. You are the C.E.O. of a company that does Web pages for other companies. In the contracts it is stipulated that you have to give all the codes and domains to your clients given them that way all the rights, but you know that once you give this information they may contract another company. You are hesitating to give them all the information or to keep some necessary data.

Alternatives for the 4-alternative and the 8-alternative versions:

- Contracts must be severely fulfilled: H
- It may be convenient to fulfil the contract: A

- The only way to have faithful clients is with a quality service: H
- To render quality services may affect the fidelity: A

- The company must not be damaged because of an honesty “excess”: H
- The company may be damaged because of an honesty “excess”: A

- A satisfy client will bring me another five clients while a dissatisfy client will make me lose another ten: H
- You may value the consequences of having satisfied or dissatisfied clients: A

Alternatives for the 2-alternative version:

- Contracts must be severely fulfilled and the only way to have faithful clients is with a quality service, in other words a satisfy client will bring me another five clients while a dissatisfy client will make me lose another ten, but the company must not be damaged because of an honesty “excess”. H
- It may be convenient to fulfil the contract because to render quality services may affect the fidelity. You may value the consequences of having satisfied or dissatisfied clients because the company may be damaged because of an honesty “excess”. A

48. You are the C.E.O. of a logistic company that for its services subcontracts a transport company. A truck has suffered an accident in a service to a client. To justify that you made all the appropriate quality controls you may make up an e-mail where at the given time you would demanded those controls to the transport company.

Alternatives for the 4-alternative and the 8-alternative versions:

- I must liberate my company from de problem: H
- It may be necessary to liberate my company from the problem: A
- Although the fraud saves the situation the consequences will be paid: H
- Although the fraud saves the situation it may be negative consequences: A
- You must not allow having charges against the company: H
- It is not convenient to have charges against the company: A
- You must not cheat, that action is a crime: H
- It is advisable to follow the law: A

Alternatives for the 2-alternative version:

- You must no cheat, that action is a crime. On the other hand, I must liberate my company from de problem but although the fraud saves the situation the

consequences will be paid and you must not allow having charges against the company. H

- It is advisable to follow the law. On the other hand, it may be necessary to liberate my company from the problem but although the fraud saves the situation it may be negative consequences and it is not convenient to have charges against the company. A

49. You are the C.E.O of a company and you are having a telephone conversation with one of your employees that complain about the work of one of his colleagues. This second employee arrives by chance to your office to ask you some questions and you are hesitating to put hands-free so that he can find out what his colleague says about him.

Alternatives for the 4-alternative and the 8-alternative versions:

- Each worker's business must be dealt with separately: H
- Each worker's business is used to be dealt with separately: A

- To put hands-free cause a disadvantage against the other employee: H
- It may be a disadvantage against the other employee to put hands-free: A

- I must not betray the message confidentially: H
- It may not be appropriate to betray the message confidentially: A

- I must fulfil the company's policy: H
- Not to fulfil the company's policy as the C.E.O. may entail some consequences: A

Alternatives for the 2-alternative version:

- Each worker's business must be dealt with separately and to put hands-free cause a disadvantage against the other employee. I must fulfil the company's policy and I must not betray the message confidentially. H

- Each worker's business is used to be dealt with separately and it may be a disadvantage against the other employee to put hands-free. It may not be appropriate to betray the message confidentially and not to fulfil the company's policy as the C.E.O. may entail some consequences. A

50. You are the C.E.O of a bank and you do a contract between one of your clients and a friend of you with professional purpose. Both of them have the telephone

number from the other person, but your friend asks you for more information about this client although he can get it calling him directly. You are considering giving it to him in order to save him time and effort.

Alternatives for the 4-alternative and the 8-alternative versions:

- You attempt against your client's privacy: H
- It may be an attempt against your client's privacy: A

- You will not be objective and you will influence somehow: H
- You may not be completely objective and you may influence somehow: A

- You always must help your friends: H
- Your friends are important to you: A

- You must follow the client's confidential policy: H
- It may be convenient to follow the client's confidential policy: A

Alternatives for the 2-alternative version:

- You attempt against your client's privacy furthermore you not be objective and you will influence somehow. You always must help your friends but you but also you must follow the client's confidential policy. H

- It may be an attempt against your client's privacy furthermore you may not be completely objective and you may influence somehow. Your friends are important to you but it may be convenient to follow the client's confidential policy. A

2. ADMINISTRATION USER GUIDE

LOG IN

To log in the system you need, first of all, to write the U.R.L. of the website (<http://www.javierly.com/mayte/admin>) in a navigator.

You will see the log in webpage where you have to write the username and the password of the administrator, and click the *Log in* button.

If you have written wrongly some of the information required you will see a warning message: "Incorrect login. Please try again".

If you have forgotten to write the password you will see a warning message: "Password cannot be empty". And if you have forgotten to write the username you will see a warning message: "Username field cannot be empty".

GENERAL INFORMATION

Once you have logged in you will see the main page of the website.

The website is divided in four parts:

1. The top one is the header where the title can be read.
2. The left one is where the menu is located.
3. The right and bigger one is the main part where the user will see the main information.
4. And the bottom part is the footer.

ABOUT THE MENU

The menu is divided in three submenus: Dilemma, User and Account.

The Dilemma submenu has two links:

- *List Dilemmas*: if the administrator clicks on it he/she will see the list of all dilemmas that the questionnaire is showing right now. There are two links at the bottom of the webpage: *Previous Dilemma* and *Next Dilemma* that let the user navigate between dilemmas.

- *Locked Dilemmas*: if the administrator clicks on it he/she will see the list of all dilemmas that are temporary saved in the data base and not show in the questionnaire, but that the administrator can use or delete in the future. There are two links at the bottom of the webpage: *Previous Dilemma* and *Next Dilemma* that let the user navigate between locked dilemmas.

The User submenu has only one link:

- *List User*: where the administrator can see the answers and information of the participants that have already answered the questionnaire.

And the Account submenu has three links:

- *Configuration*: it is an important link, because is the first thing the administrator has to do: configure the questionnaire, deciding how many alternatives will be shown by dilemma and how the questionnaire should be answered.
- *Home*: it sends the administrator to the home page.
- *Logout*: it logs out the administrator and sends him/her to the log in webpage.

HOME

The *Home* page is the first webpage the administrator will see after the log in. It also can be called as the main webpage.

Here it is shown a little introduction and it is explain the current configuration of the questionnaire, to let the administrator know it and let him/her decide if he/she wants to change it.

CONFIGURE THE QUESTIONNAIRE

The configuration of the questionnaire is the most important fact of this project: the possibility to change easily the format of the questionnaire, in other words, to change the questionnaire's version: two-alternative, four-alternative and eight-alternative versions, by changing the number of alternatives per dilemma; and the way the questionnaire should be answered.

Here the administrator has to take two decisions about the questionnaire:

- How many alternatives per dilemma will be shown?
- How the questionnaire should be answer?

By clicking the menu's *Configuration* link the administrator will see the configuration webpage. Here it is explain the current configuration of the questionnaire. The administrator has to decide if he/she wants to change or not the current configuration.

If the administrator wants to change the number of alternatives per dilemma:

- Click on the *Change number of alternatives* link. A form will appear with the current choice made.
- Click on the possibility desire.
- Click on the *Choice made* button.

As it is explain in the information sign that appears on the right of the form that changes the number of alternatives, if there are already alternatives in the data base, they will be randomly chosen after the configuration has changed, so the administrator have to check them if he/she wants specific alternatives to be shown. But this only will happen if the administrator has chosen the four-alternative or eight-alternative versions, because they share the same alternatives. On the other hand, if the administrator has chosen the two-alternative version, he/she does not need to choose between alternatives because there can only be two alternatives at most per dilemma.

If the administrator wants to change the way the questionnaire should be answered:

- Click on the *Change way to answer* link. A form will appear with the current choice made.
- Click on the possibility desire.
- Click on the *Choice made* button.

As the administrator can see, if he/she has chosen before the two-alternative version of the questionnaire, there will not appear the possibility to change the way to answer it, because there will only be one way: to choose the most important alternative between them both.

ADD

Here it is explain how the administrator can add a new dilemma and a new alternative to the data base.

How to add a dilemma

- Click on the *List Dilemmas* link of the menu.
- Click on the *Add a new dilemma* link of the webpage bottom. A form will appear.
- Add on the text area the new dilemma.
- Click on the *Add Dilemma* button. You will see appear the new dilemma to the list of dilemmas.
- If you have click the button without adding any text a warning message will appear “Text field cannot be empty”.

How to add an alternative

- Click on the *List Dilemmas* link of the menu.
- Click on the *View Complete* link on the right of the dilemma where you want to add a new alternative.
- Click on the *Add a new alternative* link of the bottom of the table with the rest of alternatives. A form will appear.
- Add on the text area the new alternative and choose the type of your new alternative: autonomous or heteronomous.
- Click on the *Add Alternative* button. You will be appeared the new alternative to the table of alternatives.
- If you have click the button without adding any text a warning message will appear “Text field cannot be empty”, and without choosing any type also a warning message will appear: “Type field cannot be empty”.

Depending on the version of the questionnaire, there will appear a warning message that reminds the administrator how many alternatives he/she should add, until all the necessary alternatives have been added.

For example, if you are in the four-alternative version, the warning message will be “You must have 4 unlock alternatives per each dilemma”. After the four alternatives have been added the message disappears.

You can add more alternatives than the necessary ones when you are working with the four-alternative or eight-alternative versions. But when you are working with the two-alternative version you can only add the two necessary alternatives. The warning message will disappear and also the *Add Alternative* button.

To control human errors, if the administrator did not add the necessary alternatives per dilemma, the system will not use that dilemma in the questionnaire.

CONSULT

Here it is explain how the administrator can consult a dilemma, an alternative and a user from the data base.

How to consult a dilemma

- Click on the *List Dilemmas* link of the menu.
- Click on the *View Complete* link on the right of the dilemma you want to consult. Here you can see the complete text of the dilemma.

How to consult an alternative

- Click on the *List Dilemmas* link of the menu.
- Click on the *View Complete* link on the right of the dilemma where you want to consult an alternative. Here you can see a table with all the alternatives of that dilemma.

If the current configuration of the questionnaire is showing the two-alternative version the administrator will see at most two alternatives. Both alternatives are two small paragraphs.

If the questionnaire is showing the four-alternative or eight-alternative versions the administrator will see as many alternatives as are saved in the data base. Those alternatives are sentences, but not small paragraphs as in the two-alternative version.

Both, the four-alternative and eight-alternative versions can use the same alternatives, and the administrator is the one that decides which alternatives are shown in each version. And it is explained in the webpage that the alternatives of the alternative's table that are "coloured" are the ones the participants will see in the questionnaire. The rest of alternatives are temporary saved in the data base for future use.

How to consult a user

- Click on the *List Users* link of the menu. Here the administrator can see the list of participants that have already answer the questionnaire.
- If you want to see all the participant information, as well as his/her answers, click on the *View Answers* link of the participant you are interested in. A pdf format document will appear with all the information.

EDIT

Here it is explain how the administrator can edit a dilemma and an alternative.

How to edit a dilemma

- Click on the *List Dilemmas* link of the menu.
- Click on the *View Complete* link on the right of the dilemma you want to edit. Here you can see the complete text of the dilemma.
- Click on the *Edit the dilemma* link that is after the dilemma's text. A form will appear with the current text.
- Change the text.
- Click on the *Edit Dilemma* button. You will see the new dilemma's text appear.
- If you delete all the text and click the button a warning message will appear "Text field cannot be empty".

How to edit an alternative

- Click on the *List Dilemmas* link of the menu.
- Click on the *View Complete* link on the right of the dilemma where you want to edit an alternative. Here you can see a table with all the alternatives of that dilemma.
- Click on the *Edit* link on the right of the table of the alternative you want to edit. A form will appear with the current text and type of the alternative.
- Change the text or/and the type.
- Click on the *Edit Alternative* button. You will see the new alternative's text or/and type appear.
- If you delete all the text and click the button a warning message will appear "Text field cannot be empty".

LOCK

Here it is explain how the administrator can lock a dilemma and an alternative.

By locking a dilemma and an alternative you are not deleting them from the data base, but you have marked them as not temporary visible in the questionnaire.

How to lock a dilemma

- Click on the *List Dilemmas* link of the menu.

- Click on the *View Complete* link on the right of the dilemma you want to lock.
- Click on the *Lock Dilemma* link of the top of the webpage. You will be sent to the webpage where you can see the list of dilemmas without your locked dilemma. You can see your lock dilemma by clicking the *Locked Dilemmas* link of the menu.

How to lock an alternative

As it is mentioned above (See *How to consult an alternative*) if you are in the two-alternative version you will have at most two alternatives. Both of them will appear in the questionnaire and you can not lock or unlock them. But in the four-alternative or eight-alternative versions, as they share the alternatives, you have to decide which alternatives you want to be shown in the questionnaire. And you will do that by locking or unlocking them.

- Click on the *List Dilemmas* link of the menu.
- Click on the *View Complete* link on the right of the dilemma where you want to lock an alternative. Here you can see a table with all the alternatives of that dilemma. The order of the alternatives is the same in the table and how they are shown in the questionnaire.
- Click on the *up* and *down* links of the table as much as you want to change the order of the alternatives. The ones that are coloured will be shown in the questionnaire. The others will be “locked” temporary in the data base to future use. You will see how the alternatives change position and if necessary color.

UNLOCK

Here it is explain how the administrator can unlock a dilemma and an alternative.

By unlocking a dilemma and an alternative you are making them visible in the questionnaire.

How to unlock a dilemma

- Click on the *Locked Dilemmas* link of the menu.
- Click on the *View Complete* link on the right of the dilemma you want to unlock.
- Click on the *Unlock Dilemma* link of the top of the webpage. You will be sent to the webpage where you can see the list of dilemmas, now with your unlock dilemma too.

How to unlock an alternative

- Click on the *List Dilemmas* link of the menu.
- Click on the *View Complete* link on the right of the dilemma where you want to unlock an alternative. Here you can see a table with all the alternatives of that dilemma. The order of the alternatives is the same in the table and how they are shown in the questionnaire.
- Click on the *up* and *down* links of the table as much as you want to change the order of the alternatives. The ones that are coloured will be shown in the questionnaire, in other words, they are the “unlocked” alternatives. The others will be “locked” temporary in the data base to future use. You will see how the alternatives change position and if necessary color.

DELETE

Here it is explain how the administrator can delete a dilemma and an alternative.

By deleting a dilemma or an alternative you are deleting them completely from the data base, and you will need to add them again if you want to use them in the future.

The administrator cannot delete a dilemma or an alternative that are not locked. If you want to delete a dilemma that is shown in the questionnaire, first you need to lock it.

How to delete a dilemma

- Click on the *Locked Dilemmas* link of the menu.
- Click on the *View Complete* link on the right of the dilemma you want to delete.
- Click on the *Delete Dilemma* link of the top of the webpage. You will be sent to the webpage where you can see the list of locked dilemmas, now without your deleted dilemma.

If a participant has answered the dilemma you want to delete, and his/her answers are saved in the data base, you can not delete this dilemma, because then it will be incoherent information in the data base. That is why the system does not delete the dilemma and an error message will appear: “Error, that action could not be done. Some alternatives of this dilemma have been answered by some user”. You can only delete dilemmas that have not been answered by any participant.

How to delete an alternative

- Click on the *List Dilemmas* link of the menu.
- Click on the *View Complete* link on the right of the dilemma where you want to delete an alternative. Here you can see a table with all the alternatives of that dilemma.
- Click on the *Delete* link on the right of the table of the alternative you want to delete. As you can see, you are not able to delete an alternative that is not locked, in other words, that is shown in the questionnaire. You can only delete the alternatives that are locked.

If a participant has chosen the alternative you want to delete, and his/her answers are saved in the data base, you can not delete this alternative, because then it will be incoherent information in the data base. That is why the system does not delete the alternative and an error message will appear: “Error, that action could not be done. This alternative has been answered by some user”. You can only delete alternatives that have not been answered by any participant whom answers are saved in the data base.

How to delete a user

- Click on the *List Users* link of the menu. Here the administrator can see the list of participants that have already answer the questionnaire.
- Click on the *Delete* link on the right of the users table. All this user information and answers has been deleted from the data base.

LOG OUT

Once the administrator has done all the necessary actions he/she can log out.

Just click on the *Logout* link of the menu, and the administrator will be sent to the log in webpage.