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# COMPUTER USER SELF-EFFICACY SCALE – CUSE: UN ESTUDIO DE VALIDACIÓN Y ADAPTACIÓN PARA POBLACIÓN PORTUGUESA

Resumen: El instrumento *Computer User Self-Efficacy Scale* (CUSE; Cassidy & Eachus, 2002) ha sido desarrollado con el fin de medir y analizar la autoeficacia de la población adulta en el contexto del uso de la computadora. Surge en un contexto en que muchos autores se han interesado en el estudio de la auto-eficacia y que consideraba que éste tenía una fuerte influencia en el desempeño de las tareas que se requerían el uso de las computadoras.

El presente estudio preliminar tiene como objetivo adaptar y validar el instrumento *Computer User Self-Efficacy Scale* (CUSE; Cassidy & Eachus, 2002) para la población portuguesa, específicamente en la población jubilada que utiliza el ordenador.

Los resultados indican que esta escala tiene una alta consistencia interna y tiene normas aceptables que ofrecen fiabilidad y validez. También se encontró que la autoeficacia se correlaciona estadísticamente positiva y moderadamente con experiencia anterior con el uso de computadoras. Los resultados indican que el instrumento *Computer User Self-Efficacy Scale* (CUSE; Cassidy & Eachus, 2002) es válido para el estudio y análisis de la efectividad de la libre utilización de las computadoras en las personas portuguesas que están jubilados y que utilizan el ordenador.

Palabras clave: Computer User Self-Efficacy Scale; Autoeficacia; Validación; Población portuguesa.

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# COMPUTER USER SELF-EFFICACY SCALE – CUSE: A PRELIMINARY STUDY TO PORTUGUESE POPULATION

Abstract: The instrument *Computer User Self-Efficacy Scale* (CUSE; Cassidy & Eachus, 2002) was developed in order to measure and analyze the self-efficacy of the adult population in the context of computer use. Arises in a context where many authors were interested in the study of self-efficacy and who considered that this had a strong influence on the performance of tasks that were required the use of computers.

The present preliminary study aims to adapt and to validate the instrument *Computer User Self-Efficacy Scale* (CUSE; Cassidy & Eachus, 2002) for the Portuguese population, specifically in the retired population who uses the computer.

The results indicate that this scale has a high internal consistency and acceptable standards featuring reliability and validity. It was also found that self-efficacy is positively correlated with moderate and statistically previous experience with using computers. The results indicate that the instrument *Computer User Self-Efficacy Scale* (CUSE; Cassidy & Eachus, 2002) is valid for the study and analysis of the effectiveness of self-use of computers in Portuguese people who are retired and who use computer.

Key words: Computer User Self-Efficacy Scale, Self-Efficacy; Validation; Portuguese population.

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Educación y Cultura en la
Sociedad de la Información

*TESI, 14(2), 2013, pp. 346-370*

# COMPUTER USER SELF-EFFICACY SCALE – CUSE: A PRELIMINARY STUDY AND ADAPTATION TO PORTUGUESE POPULATION

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## 1.- INTRODUCTION

The Information and Communication Technologies (ICT) have undoubtedly a strong impact on how people live their lives. We are witnessing today a radical change in the way we interact and communicate with others, the way we work and organize our lives. This transformation was felt, even if directly or indirectly, in international social and educational policies. According to UNESCO (2005), ICT consist of an investment imperative for developed societies and countries in the developing world. With regard to education, the educational systems watch, too, the transformation in the organization and operation, establishing new requirements. In the social world, changes are quick and everything that is considered current is quickly transformed and passed. We live in a digital age, and everybody, in one way or another, are intertwined and surrounded by ICT. With regard to education, focusing on the object of study of this article, the computer is considered a powerful and flexible tool, crucial to the quality of teaching and learning.

Some authors have examined the factors that may be involved in the quality of learning with students who use ICT. Blocher, Montes, Willis and Tucker (2002) conducted a study which found that success depends on specific skills and strategies (eg cognitive and metacognitive strategies for learning and motivation). Also Eachus and Cassidy (2002), interested by the factors that may lead to quality of computer use, found that high levels of efficacy and self-confidence are associated with a more positive self-assessment relativity with the use and previous computer experience. This conclusion projecting ourselves for and Social Cognitive Theory of Bandura which refers self-efficacy as a factor in the self-regulation of motivation (Bandura, 1977, 2005).

The Social and Cognitive Theory is structured around the concept of self-efficacy presented by Albert Bandura in 1977 and refers to the human capacity for self-actively guide their behaviors to mastery. According to Bandura (1977), human activity depends on the interdependence and the influence exerted by three determinants: (a) internal personal factors (eg, cognitive, affective and biological), (b) the environment, (c) behavior. Accordingly, all activity is seen as an active ingredient of dynamic interactions between environmental influences and personal behavior. Contrary to the dualistic view of the human being (seen as an agent or as an object), Bandura argues that this is both the active agent and the object, ie human acts on something and human can suffer the action of that act. Although Bandura (2005) has pointed out a number of specific capabilities of human beings (eg learning by imitation; intentionality; symbolization; anticipatory thinking, self-reflection), is the ability to self-directing and self-regulation that the author introduces the concept of self-efficacy. Here, states that self-efficacy is a mechanism of behavioral change or self-regulation and asserts that among all mechanisms, none is more central than the personal efficacy (Bandura, 2001, 2004).

The concept of self-efficacy is related to the belief that individuals have about their personal skills and abilities to successfully perform one task or behavior (Bandura, 1977). According to Tschannen-Moran, Woolfolk Hoy and Hoy (1998), self-efficacy is a motivational construct that relies on self-perception of competence that goes beyond the current performance level of the subject. Concerning these beliefs, Bandura (1997, 2001, 2004, 2006) refers, in their studies, four kinds of core processes that enable the regulation of human functioning: (a) cognitive processes, (b) emotional processes, (c) processes motivational and (d) decision-making processes. Thus, it is understood that the self-efficacy is associated with several factors than solely the amount of capabilities of a particular subject. This depends, therefore, on the personal resources that the subject has, the circumstances and the motivation to carry them out. Despite the prediction of behavioral conduct made possible by the knowledge that we have of the capacity of individuals, is required caution in making value judgments on the expected results. In fact, there is a greater probability of na subject to perform a task successfully believe that can be achieved. But more than believe, the efficacy beliefs become internal rules that regulate human behavior, allowing the adjustment of the level of effort expended and the persistence and perseverance (Bandura & Jourden, 1991). The perception of self-efficacy follows, according to Bandura (1994), the combined information from four sources: (a) the personal experiences of success previously obtained, (b) vicarious experiences, by comparison with other persons, (c) verbal persuasion, coupled with social influence, (d) the physiological or emotional. In practice, the successful experiments that an individual

TESI, 14(2), 2013, pp. 346-370

has had to use, for example, a computer, will increase the sense of effectiveness. Rather, the experiences of failure will tend to decrease it. But this sense of efficacy will be more or less intense if the emotional state of the subject to perform is equally consistent. Although it is considered that these information sources has only an indirect effect on the formation of self-efficacy beliefs (Tschannen-Moran *et al*., 1998), they hold a crucial role as shown and perceives the task in question.

### *1.1.- Self-efficacy in the use of computers*

The literature shows that many authors have been examining and studying the factors that influence the beliefs of self-efficacy when people use the computer (Busch, 1995; Compeau & Higgins, 1995; Gist, Schwoerer, & Rosen, 1989; Harrison & Rainer, 1992; Hill, Smith & Mann, 1987; Igbaria & Livari, 1995; Marakas, Yi, & Johnson, 1998; Potosky, 2002). These studies indicate that the experience and knowledge that subjects have about the use of computers is positively related to the beliefs of self-efficacy in ICT. These data are consistent with the Social Cognitive Theory of Bandura, previously specified. In fact, Bandura (1986) argues that the experiences that an person had earlier on certain task will enhance the success in performing similar tasks. Thus, subjects who possess knowledge about the use of a computer will have, according to the theory, successfully on perform duties requested and that are related to the field of computing. Cassidy and Eachus (2002) were interested in studying the concept of self-efficacy in the context of computer use. These authors also found that self-efficacy was, in their study, positive and strongly correlated with previous experience, corroborating the findings of the aforementioned studies. Holcomb, Brown, Kulikowich and Zheng (2003) argue that, in this context, self-efficacy is positively related to the initiative, with the desire to participate in computer activities. They point out those subjects with positive self-efficacy expectations demonstrate success and are more persevering when faced with difficulties in implementing the computerized tasks. Despite the importance that self-efficiency related to the use of the computer owns the successful performance of tasks in informatics oriented; self-efficacy may also be decisive for the intended future use of the computer (Marakas *et al*., 1998).

Some authors were interested in examining the relationship between gender and self-efficacy in computer use (Murphy *et al*., 1989; Harrison & Ranier, 1992; Smith, 1994). While Ranier & Harrison (1992) found that men show a self-efficacy more positive

when compared to women, Smith (1994) and Murphy (1989) found no gender differences.

## 2.- METHODOLOGY

### *2.1.- Objectives*

The aim of this study is to validate the instrument *Computer User Self-Efficacy Scale* (CUSE; Cassidy & Eachus, 2002) for the Portuguese population, specifically in the retired population who use the computer.

The scale was translated to Portuguese from the original, and then translated, again, to English by an independent and accredited translator. The version of English translation was then compared with the original instrument.

### *2.2.- Participants*

The sample of this study consists of a total of 67 persons, aged between 44 and 81 years. For the study object of this work was intended to recruit people who were retired and who had attended a computer course held in Coimbra.

The present study is a pilot sample, only with people living in Coimbra.

### *2.3.- Instrument*

The Computers Users Self-Efficacy Scale (CUSE; Cassidy & Eachus, 2002) aims to measure and analyze the self-efficacy of the adult population in the context of computer use. The authors wanted to develop a scale to examine how self-efficacy relates to and influences the performance on the task in which participants turn to use the computer. This consists on a scale of attitudes towards computers and arises in a social context in which computers and ICT hold an impact on many aspects of people's lives.

Structurally, CUSE is organized into two parts: the first, with issues specific information on the level of experience with computers. The second part with the scale itself, which aims to detail this previous information. The scale is organized into 30 items on how the participant feels about computers. The participants should reply indicating the intensity with which they agree or disagree in each afirmation. The response is Likert´s format and ranges from "Strongly Disagree" and "Strongly Agree". The total score (sum of items)

TESI, 14(2), 2013, pp. 346-370

say the level of self-efficacy of the subject, the higher the total score is, the higher level of perceived self-efficacy.

*2.4.- Statistical Analysis*

For statistical and data analysis was used version 17.0 of SPSS (Statistical Package for the Social Sciences). We proceeded to descriptive statistics, including the analysis of relative frequencies, means and standard deviations for the socio-demographic sample.

Was realized the principal component analysis and exploratory factor analysis to verify the existence of factors and analyze the construct validity of the scale. Then proceeded to the analysis of internal consistency, the Cronbach *Alpha´*s values from inter-item.

Finally, we resorted to statistical inference, specifically the Pearson correlation, with the objective of evaluating the type of relationship between the variables self-efficacy, age, and previous experience with computers. To this end, we accepted as statistically significant variables, all differences with a significance level of less than 0.05. For the interpretation of Pearson's correlation coefficients we used the classification suggested by Cohen (1998): nonexistent correlation: $r = .00$ to $r = .09$; small correlation: $r = .10$ to $r = .29$; moderate correlation: $r =. 30$ to $r = .50$; high correlation: $r > .50$.

The internal consistency of the scale validation for the portuguese population was analyzed from the values of Cronbach´s Alpha.

*2.4.1.- Variable*

Self-effective in use of computers, variable that we want to analize, was operationalized by CUSE, by the total scores for each subject.

## 3.- RESULTS

*3.1.- Statistics descriptives*

The sample consists of a single group with 67 patients, which 54 (81%) were male and 13 (19%) were female (see Table 1). Note that these have ages between 44 and 81 years old, standing in the average age 66.19 years (SD = 6.85).

**Table 1 - Sociodemographic characteristics of the group**

| *N* | Age | Gender |
|---|---|---|
| 67 | *M* = 66.19 (*DP* = 5.17; *A* = 44-81) | Female = 13 (19%) Male = 54 (81%) |

Regarding the question of the part 1 (socio-demographic) scale (cf. Table 2) " Experience with computers" we can see that the group has some experience with computers (N = 35; 52.2) and 21 of the subjects reported having very limited previous experience (35.8%). Of all the 67 subjects, 5 reported not having any experience (7.5%) and only 2 reported having extensive experience with computers (4.5%).

When we look at the data regarding gender, we can see that both the majority of women (N = 8) and men (N = 27) have some experience. A lower score goes to the item "extensive experience" with only 2 men and 1 woman.

**Table 2 - Frequencies and percentages in relation to gender regardind the item "Experience with computers".**

| Experience with computers | Male | Female | | |
|---|---|---|---|---|
| | Frequencies | Frequencies | Total | % Total |
| **None** | 4 | 1 | 5 | 7.5% |
| **Very limited** | 21 | 3 | 24 | 35.8% |
| **Some experience** | 27 | 8 | 35 | 52.2% |
| **Extensive experience** | 2 | 1 | 3 | 4.5% |

*TESI, 14(2), 2013, pp. 346-370*

Regarding the ítem "Do you own a computer?" (cf. Table 3) we can see that in the simple, 48 men have a computer and only 6 withouth. In the simple, 12 women have computers and only one relates not have. Looking at the data, the subjects with computers are in the majority (N = 60, 89.6%) and only 7 subjects did not have computers (10.4%).

**Table 3. Frequencies and percentages in relation to gender regarding the item "Do you own computer?".**

| Do you own computer? | Male | Female | | |
|---|---|---|---|---|
| | Frequencies | Frequencies | Total | % Total |
| **Yes** | 48 | 12 | 60 | 89.6% |
| **No** | 6 | 1 | 7 | 10.4% |

Regarding the question (cf. Table 4) "Do you have access to your computer when you are not in college or at work?" we can see that there are 27 men in the group with access to computer and the remaining 27 without this access. In the simple, 5 women have access to the computer and 8 refer not have. In this question, the scores were almost the same amount, and in the total group 32 people reported having computer access (47.8%) and 35 respondents did not have access (52.2%).

**Table 4. Frequencies and percentages in relation to gender regarding the item "Do you have access to your computer when you are not in college or at work?"**

| Do you have access to a computer? | Male | Female | | |
|---|---|---|---|---|
| | Frequencies | Frequencies | Total | % Total |

| | | | | |
|---|---|---|---|---|
| **Yes** | 27 | 5 | 32 | 47.8% |
| **No** | 27 | 8 | 35 | 52.2% |

Regarding the question "Have you ever attended a computer training course?" (cf. Table 5) we can see that in the group of a total of 54 men, only 21 held a training in the area. When we observe the female population we see that 7 held a previous training. In the total sample of 67 subjects, 39 subjects did not attend previous training (58.2%).

**Table 5. Frequencies and percentages in relation to gender regarding the item ""Have you ever attended a computer training course?"**

| Do you had a computer training course? | Male | Female | | |
|---|---|---|---|---|
| | Frequencies | Frequencies | Total | % Total |
| **Yes** | 21 | 7 | 28 | 41.8% |
| **No** | 33 | 6 | 39 | 58.2% |

*3.2-. Construct validity*

The measure of sampling adequacy of Kaiser-Meyer-Olkin demonstrates the suitability of the sample for analysis is, according to Field (2000), *excellent* (KMO = .857). The sphericity test of Bartllet is also significant [$\chi 2$ (67) = 1530.130, p <.001], indicating that correlations between items are sufficiently high for the principal components analysis (PCA).

Principal component analysis (PCA) was performed considering only one factor as stated in the original scale´s study (Cassiy & Eachus, 2002). Internal consistency was also calculated using the Cronbach's alpha.

*TESI, 14(2), 2013, pp. 346-370*

To confirm the unidimensionality of the scale, we considered some criteria for corroborating: the variance of the first factor is, at least, twice the value of the second factor. Also, when we forced the factor analysis to one factor, none of items saturate below the Stevens´criterion (1985) (N = 607, r> .11; saturations> .21 p <.01).

By principal component analysis (PCA) we confirm that, in the scale (cf. Table 6) all items meet the criteria, revealing significant saturations, with the exception of item 17. Since Cronbach's alpha of the scale slightly improved if the item is deleted (from .949 to .953), it was decided to keep it on the scale once this already have a very high internal consistency. These results support the unidimensionality of the scale and corroborates the original version.

**Table 6. Summary of exploratory factor analysis results**

| Item | Content | Factor loading | $h^2$ |
|---|---|---|---|
| **1** | Most difficulties I encounter when using computers, I can usually deal with | .592 | .245 |
| **2** | I find working with computers very easy | .718 | .461 |
| **3** | I am very unsure of my abilities to use computers | .837 | .567 |
| **4** | I seem to have difficulties with most of the packages I have tried to use | .803 | .561 |
| **5** | Computers frighten me | .845 | .554 |
| **6** | I enjoy working with computers | .696 | .332 |
| **7** | I find computers get in the way of learning | .652 | .239 |

| | | | |
|---|---|---|---|
| **8** | DOS-based computer packages don't cause many problems for me | .714 | .464 |
| **9** | Computers make me much more productive | .763 | .255 |
| **10** | I often have difficulties when trying to learn how to use a new computer package | .742 | .345 |
| **11** | Most of the computer packages I have had experience with, have been easy to use | .729 | .477 |
| **12** | I am very confident in my abilities to use computers | .777 | .534 |
| **13** | I find it difficult to get computers to do what I want them to | .803 | .422 |
| **14** | At times I find working with computers very confusing | .848 | .589 |
| **15** | I would rather that we did not have to learn how to use computers | .851 | .409 |
| **16** | I usually find it easy to learn how to use a new software package | .699 | .338 |
| **17** | I seem to waste a lot of time struggling with computers | .571 | .002 |
| **18** | Using computers makes learning more interesting | .788 | .207 |
| **19** | I always seem to have problems when trying to use computers | .771 | .604 |
| **20** | Some computer packages definitely make learning easier | .654 | .160 |
| **21** | Computer jargon baffles me | .674 | .404 |
| **22** | Computers are far too complicated for me | .771 | .632 |

TESI, 14(2), 2013, pp. 346-370

| | | | |
|---|---|---|---|
| **23** | Using computers is something I rarely enjoy | .780 | .472 |
| **24** | Computers are good aids to learning | .820 | .224 |
| **25** | Sometimes, when using a computer, things seem to happen and I don't know why | .827 | .476 |
| **26** | As far as computers go, I don't consider myself to be very competent | .758 | .477 |
| **27** | Computers help me to save a lot of time | .732 | .255 |
| **28** | I find working with computers very frustrating | .866 | .393 |
| **29** | I consider myself a skilled computer user | .793 | .537 |
| **30** | When using computers I worry that I might press the wrong button and damage it | .762 | .530 |

The first six factors reported values above 1. As can be seen, the first and the second factor have the highest percentage of variance (cf. Table 7) with the first factor being, at least, twice the second factor. The first factor explains 42.35% of the variance.

**Table 7. Total variance explained for each of the scale´s factors**

| Factor | Eigen value | % of variance | Cumulative % |
|---|---|---|---|
| **Most difficulties I encounter when using computers, I can usually deal with** | 12.706 | 42.355% | 42.355% |
| **I find working with computers very easy** | 3.797 | 12.658% | 55.013% |
| **I am very unsure of my abilities to use computers** | 1.699 | 5.665% | 60.677% |

| | | | |
|---|---|---|---|
| **I seem to have difficulties with most of the packages I have tried to use** | 1.431 | 4.770% | 65.448% |
| **Computers frighten me** | 1.166 | 3.887% | 69.335% |
| **I enjoy working with computers** | 1.027 | 3.424% | 72.759% |
| **I find computers get in the way of learning** | 0.920 | 3.065% | 75.824% |
| **DOS-based computer packages don't cause many problems for me** | 0.869 | 2.897% | 78.721% |
| **Computers make me much more productive** | 0.646 | 2.153% | 80.875% |
| **I often have difficulties when trying to learn how to use a new computer package** | 0.595 | 1.982% | 82.857% |
| **Most of the computer packages I have had experience with, have been easy to use** | 0.562 | 1.874% | 84.731% |
| **I am very confident in my abilities to use computers** | 0.483 | 1.609% | 86.341% |
| **I find it difficult to get computers to do what I want them to** | 0.475 | 1.582% | 87.923% |
| **At times I find working with computers very confusing** | 0.450 | 1.500% | 89.423% |
| **I would rather that we did not have to learn how to use computers** | 0.410 | 1.368% | 90.792% |
| **I usually find it easy to learn how to use a new software package** | 0.369 | 1.232% | 92.023% |
| **I seem to waste a lot of time struggling with computers** | 0.347 | 1.158% | 93.181% |
| **Using computers makes learning more interesting** | 0.277 | 0.925% | 94.106% |
| **I always seem to have problems when trying to use computers** | 0.260 | 0.866% | 94.972% |

*TESI, 14(2), 2013, pp. 346-370*

| | | | |
|---|---|---|---|
| **Some computer packages definitely make learning easier** | 0.247 | 0.822% | 95.794% |
| **Computer jargon baffles me** | 0.217 | 0.722% | 96.516% |
| **Computers are far too complicated for me** | 0.205 | 0.685% | 97.201% |
| **Using computers is something I rarely enjoy** | 0.168 | 0.559% | 97.759% |
| **Computers are good aids to learning** | 0.154 | 0.514% | 98.273% |
| **Sometimes, when using a computer, things seem to happen and I don't know why** | 0.124 | 0.414% | 98.687% |
| **As far as computers go, I don't consider myself to be very competent** | 0.106 | 0.353% | 99.041% |
| **Computers help me to save a lot of time** | 0.086 | 0.286% | 99.327% |
| **cI find working with computers very frustrating** | 0.079 | 0.262% | 99.589% |
| **I consider myself a skilled computer user** | 0.068 | 0.228% | 99.817% |
| **When using computers I worry that I might press the wrong button and damage it** | 0.055 | 0.183% | 100% |

### *3.3. - Analysis of internal consistency*

For the analysis of the items we proceeded to calculate the average, standard deviation (SD), corrected correlation between the item and the total and Cronbach's *alpha* if the item was deleted (cf. Table 8).

The analysis of the internal consistency of the scale through the Cronbach *alpha´*s coefficient shows that all scale items have an *alpha* greater than 0.90.

**Table 8. Item, means, standard deviation, correlation with the scale of the item except the item and Cronbach's *alpha* without the item**

| Items | M | DP | Corrected R | α |
|---|---|---|---|---|
| Most difficulties I encounter when using computers, I can usually deal with | 3.22 | 1.555 | .482 | .949 |
| I find working with computers very easy | 3.27 | 1.452 | .673 | .947 |
| I am very unsure of my abilities to use computers | 3.73 | 1.666 | .734 | .946 |
| I seem to have difficulties with most of the packages I have tried to use | 3.45 | 1.636 | .735 | .946 |
| Computers frighten me | 4.36 | 1.823 | .723 | .946 |
| I enjoy working with computers | 4.64 | 1.443 | .555 | .948 |
| I find computers get in the way of learning | 5.22 | 1.165 | .469 | .949 |
| DOS-based computer packages don't cause many problems for me | 2.93 | 1.570 | .675 | .947 |
| Computers make me much more productive | 4.40 | 1.457 | .490 | .948 |
| I often have difficulties when trying to learn how to use a new computer package | 3.10 | 1.802 | .590 | .948 |
| Most of the computer packages I have had experience with, have been easy to use | 3.22 | 1.277 | .662 | .947 |
| I am very confident in my abilities to use computers | 3.24 | 1.426 | .703 | .947 |
| I find it difficult to get computers to do what I want them to | 3.21 | 1.619 | .641 | .947 |
| At times I find working with computers very confusing | 3.55 | 1.690 | .759 | .946 |

*TESI, 14(2), 2013, pp. 346-370*

| | | | | |
|---|---|---|---|---|
| **I would rather that we did not have to learn how to use computers** | 5.00 | 1.446 | .613 | .947 |
| **I usually find it easy to learn how to use a new software package** | 3.22 | 1.496 | .543 | .948 |
| **I seem to waste a lot of time struggling with computers** | 3.79 | 1.665 | .042 | .953 |
| **Using computers makes learning more interesting** | 4.99 | 1.285 | .438 | .949 |
| **I always seem to have problems when trying to use computers** | 3.73 | 1.720 | .765 | .946 |
| **Some computer packages definitely make learning easier** | 4.89 | 1.179 | .386 | .949 |
| **Computer jargon baffles me** | 3.69 | 1.690 | .627 | .947 |
| **Computers are far too complicated for me** | 4.12 | 1.719 | .777 | .946 |
| **Using computers is something I rarely enjoy** | 4.72 | 1.475 | .662 | .947 |
| **Computers are good aids to learning** | 5.18 | 1.180 | .465 | .949 |
| **Sometimes, when using a computer, things seem to happen and I don't know why** | 2.49 | 1.541 | .681 | .947 |
| **As far as computers go, I don't consider myself to be very competent** | 3.09 | 1.747 | .675 | .947 |
| **Computers help me to save a lot of time** | 4.43 | 1.438 | .489 | .948 |
| **I find working with computers very frustrating** | 5.19 | 1.234 | .602 | .948 |
| **I consider myself a skilled computer user** | 2.91 | 1.574 | .713 | .946 |
| **When using computers I worry that I might press the wrong button and damage it** | 3.33 | 2.092 | .710 | .947 |

All items punctuate values equal or less than the value of internal consistency (α = .949) except, as we saw earlier, Item 17 ("I seem to waste a lot of time struggling with computers") which when excluded would increase the value of Cronbach's alpha to 0.95. Because his slightly increased, and since the scale with all items has a high coefficient internal, we decided to keep it.

The scale has high internal consistency (α = .949), an *alpha* very close to the value obtained in the original study (Cassidy & Eachus, 2002) (see Table 9).

**Table 9. Cronbach´s *alpha* obtained in the present study and in the original study**

| | α **Present study** | α **Original study*** |
|---|---|---|
| **CUSE** | .94 | .97 |

* Cassiy & Eachus (2002)

*3.4. - Correlational analysis.*

Grouped according to gender, women showed higher self-efficacy´s values [t (67) = -.510, p = .611] when compared to men (cf. Table 10). As can be seen, women show a higher mean relative to men regarding self-efficacy, although this difference was not statistically significant.

**Table 10. Means, standard deviations and Student's t test for gender (N=67)**

| | **M** | **DP** | ***t*** | ***p*** |
|---|---|---|---|---|
| **Male** | 115.38 | 28.45 | -.510 | .611 |
| **Female** | 120.07 | 34.78 | | |

When grouped according to the item "Do you own a computer" (cf. Table 11) we can see that the subjects who possess a personal computer have a higher self-efficacy (M =

TESI, 14(2), 2013, pp. 346-370

120.98, SD = 26.03) compared to subjects who did not have computer (M = 76.14, SD = 29.02), and this difference was statistically significant [t (67) = 4.264, p = .000].

**Table 11. Means, standard deviations and Student's t test for ítem "Do you own a computer?"**

| | M | DP | *t* | *p* |
|---|---|---|---|---|
| **Yes** | 120.98 | 26.03 | | |
| | | | 4.264 | .000* |
| **No** | 76.14 | 26.02 | | |

** p < .001*

When grouped according to the item "Do you have access to a computer when you are not in college or at work?" (cf. Table 12), we can see that subjects who have access to computers have a higher self-efficacy (M = 122.96, SD = 27.05) compared to subjects who do not have access (M = 110.20, SD = 30.79) [t (67) = 1.796, p = .077].

**Table 12. Means, standard deviations and Student's t test for item "Do yoa have Access to computer when you are not in college or at work?"**

| | M | DP | *t* | *p* |
|---|---|---|---|---|
| **Yes** | 121.96 | 27.05 | | |
| | | | 1.796 | .077* |
| **No** | 110.20 | 30.79 | | |

** p > .001*

When grouped according to the item "Have you ever attended a computer training course?" (cf. Table 13), we can see that the subjects who had previous training in computer science have a higher self-efficacy (M = 125.21, SD = 26.74) compared to subjects who did not have hereby computer (M = 109.89, SD = 30.14), this difference was statistically significant [t (67) = 2.149, p = .035].

**Table 13. Means, standard deviations and Student's t test for item "Have you ever attended a computer training course?"**

| | M | DP | *t* | *p* |
|---|---|---|---|---|
| **Yes** | 125.21 | 26.74 | | |
| | | | 2.149 | .035* |
| **No** | 109.89 | 30.14 | | |

** p < .05*

In Table 14 we can see the Pearson´s correlation for the variables self-efficacy in using computers (total of scale´s values), age, experience with computers, having computer ("Do you own a computer?"), computer access ("Do you have access to a computer when you are not in college or at work?") and training in the area ("Have you ever attended a computer training course?").

We can observe a negative correlation of small magnitude, statistically not significant (r = .146, p = .237). In turn, self efficacy in the use of computers seems to be positively and moderate correlated with the variable "computer experience", which was statistically significant (r = .463, p = .000). Regarding the variable "having computer", this seems to be correlated significantly and negatively with moderate magnitude (r = - .468, p = .000). Self-efficacy and the variable "computer access" are negatively correlated with a small magnitude (r = - .217, p = .077). Self-efficacy and the variable " training in the area" are also negatively correlated with small magnitude, with a statistically significant correlation (r = - .258, p = .035).

**Table 14 - Correlation between self-efficacy in using computers and the variable "Age","Experience with computers", "Having computer", "Computer access" and "Training in the area"**

| | Self-efficacy with computers |
|---|---|

*TESI, 14(2), 2013, pp. 346-370*

| | |
|---|---|
| **Age** | -.146 |
| **Experience with computer** | .463** |
| **Having computer** | -.468** |
| **Computer access** | -.217 |
| **Training in the area** | -.258* |

* $p < 0,01$
** $p < 0,05$

## 4.- CONCLUSION

The study of self-efficacy in this context is crucial because it allows us to understand the implications and the impacts in belief system of the subjects at various levels, both professionally and personally. At the school level, students who turn to use the computer seem to need skills and specific strategies to be succeed in these tasks. Cassidy and Eachus (2002), in their study, found that the self-efficacy is an important fact in the context of computer use. If participants had a positive self-assessment of their skills, they will have higher levels of self-efficacy. The Social Cognitive Theory of Bandura (2001) defends that. The notion of self-efficacy is important and necessary to be able to achieve certain performances.

The intention of this preliminary study was to validate and to adapt the instrument *Computer User Self-Efficacy Scale* (CUSE; Cassidy & Eachus, 2002) to the Portuguese population, specifically to people with this age group that use computers everyday. The authors intended, with the development of this scale, measure and analyze the self-efficacy of the adult population in the context of the use of computers, check how this relates to and influences the performance in performing tasks where it is necessary to use the computer. The scale arises in the context above, in which computers hold a huge impact on many aspects of people's lives. Several authors have studied the factors that influence self-efficacy beliefs (Busch, 1995; Compeau & Higgins, 1995; Gist, Schwoerer, & Rosen, 1989; Harrison & Rainer, 1992; Hill, Smith, & Mann, 1987; Igbaria & Livari, 1995; Marakas, Yi, & Johnson, 1998; Potosky, 2002). These authors argue that the

experience and knowledge that subjects have about computers is positively related with self-efficacy beliefs.

To validate this instrument, we recruited a sample of 67 adults in the situation of reform. One of the inclusion criteria was, specifically, the frequency in a computer course held in Coimbra. The scale was translated into Portuguese and then translated from Portuguese to English by an accredited and independent translator, in order to maintain the reliability of the items.

The construct validity showed that the CUSE have one factor: self-efficacy with computers. The results indicate that the scale is validated for this specific population, retired people who use the computer, has a high internal consistency ($\alpha = 0.949$) presenting acceptable standards of reliability and validity. Cassidy and Eachus (2002), upon validation of the instrument, they found that this had a high internal consistency ($\alpha = 0.97$). If we compare this value with our results we can verified that the difference between the valus of Conbrach´s alpha is almost nil. Regarding the relationship between self-efficacy and other variables in this study, we found that there was a significantly moderate correlation with the variable Computer Experience ($r = .463$, $p < .05$). We can verify the existence of a positive relationship between the subject's prior experience and high levels of self-efficacy.

This information is also corroborated by the study of Cassidy and Eachus (2002). The authors found that the scale of the scale was positively correlated with previous experience with computers. Other studies corroborate this positive relationship (Busch, 1995; Compeau & Higgins, 1995; Gist *et al*., 1989; Harrison & Rainer, 1992; Hill *et al*., 1987; Igbaria & Livari, 1995; Marakas *et al*., 1998; Potosky, 2002). Concluding, we can assume that the instrument Computer User Self-Efficacy Scale (CUSE; Eachus & Cassidy, 2002) is valid for the study and for the analysis of the effectiveness of self-use of computers.

These data are related to what Bandura defended in their theory. In the Social Cognitive Theory, Bandura argues that the experiences that an individual has previously had in one specific task can increase the success in performing similar tasks. So, subjects with previous experience with computers can show us higher self-efficacy.

*TESI, 14(2), 2013, pp. 346-370*

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