

Generic Icons – Yes or No?

Krunoslav Bedi

School of Building and Craft Čakovec

krunoslav.bedi@ck.t-com.hr

Nikolina Žajdela Hrustek

University of Zagreb

Faculty of Organization and Informatics Varaždin

nikolina.zajdela@foi.hr

Abstract

The information society has become increasingly dependant on programs that are subjected to frequent evolutive, basic and logical changes for a variety of reasons whereas the visual design of the program/program interface mostly remains the same or gets slightly modified. The development of technology has become to such an extent a commonplace that the use of redesigned programs implies icons that are visually acceptable although representing obsolete technologies and that are eventually hard to change due to the habits developed by the program users. The research presents a study into the personal preference as to a particular icon, "Save" for example, and into the perception of the visual identities of today's programs under the circumstance of program icons being not compliant with the technological state-of-the-art. Based on the obtained results, the survey that included students attending web design and media technician courses and ECDL course participants who come in contact with computers and programming tools for the first time should enlighten both teachers and designers of programming interfaces about the way of linking the formal knowledge with a constructivist approach to designing and redesigning programs.

Keywords: visual identity, e-learning, web design, icon

1. Introduction

Everything one can see is in fact a reflection of the one's inner perception, the whole previously gained experience and the interpretation of the object being watched. Needless to say, interpretations of "the seen" differ from person to person. Not all interpretations are static ones and they in turn depend on a series of circumstances and personal cognitions. Visual stimuli received from the surroundings namely, from the virtual surroundings - are not merely a group of objects, colors and shapes because to see does not mean merely to project retina-captured images to the brain. The skill of communication does not rely on spoken words only any more because the space and possibilities of communicating are nowadays based on the visual abilities in the work surroundings. The work surroundings is supposed to communicate clear, precise and unambiguous messages and to at least decrease the potential user's annoyance with the used tool. Icons are often though to be more useful at communicating ideas than words because of their ability to transcend language barriers and present meaning in a condensed form [6]. When working with computers and other devices with complex user interfaces, users receive large amounts of graphical information that they need to interpret [4]. With the development of the information society, it has become necessary to release software early that satisfies users.

In the contemporary information society, programs are subjected to frequent evolutive, basic and logical developments/changes for a variety of reasons. The examples of complete redesign of a program are few. The visual design remains the same or gets slightly modified despite the users' constructivism. A redesign of a program is a complex process that is to include various specialists. Taking the afore mentioned facts into consideration, it is possible

to detect the existence of various wishes as to the design of an icon which is, in turn, meddling with the realm of the program users' habits (or wishes).

Therefore, it has become important to develop the software quickly so that the users can try it, and give the developers feedback [10]. Activity and ability of a program user are conditioned by a subjective assessment of the quality of the program /for example the visual appearance of interface/and wanted/anticipated feeling of satisfaction with already used or currently applied audio-visual work surroundings.

The evolution of digital design as a unique field of design endeavor, motivated by its own body of theoretical sources, promulgated by a culture of discourse, supported by new technologies, and producing unique classes of designs is a phenomenon that has been rapidly crystallizing in the past decade [8]. Today, when the software tools used for the transfer of knowledge and learning, if designed correctly, a multimedia module can visually stimulate a student and transform learning into an active, engaging process [5].

2. (Un)recognizability of the icon “Save” visual message

If a message is to be understood, it has to be based on the recipient's experience. Understanding a watched object or understanding the message it sends depends on previously gained experience. If what was going on before is not known, an image itself will not convey an accurate visual message because there is no decoding without the cognition experience. Visual communication, as well as the verbal one, always feature a certain intention and a direction regardless of one who sends or receives them being or not being aware of the aforementioned fact [5].

The interpretation of an abstract painting is multiple by its nature and each person interprets an abstract painting in his/her own way, depending on the ability of linking associations and/or on cognition based on experience. The ability of making associations with former experience or action plays as well an important role in the simple use of icons and their unanimous acceptance for particular purposes.

Icons may replace almost all commands or short textual instructions, but they have to be clear and recognizable enough when it comes to interpretation. The ability of icons to simplify information display is largely due to their capacity to present a lot of information in a concise and easily recognized format [2].

Unlike words, icons, symbols and signs convey information more effectively and they are easier to recognize and remember for a longer period of time. Furthermore, they do not feature any language barrier and it widens the scope of their use in a broader context. The research conducted by Huang, Shieh and Chi shows that there are several important factors that must be taken into consideration when talking about the design of computer icons: styling quality, message quality, meaningfulness, locatability, and metaphor.

Analysis of variance of the importance ratings for elements within each factor found that meaningfulness and locatability were more important than styling quality, message quality and metaphor. Although the essential considerations for icon design are comprehensibility and identifiability, the results of this research demonstrate that “style” should also be considered as a factor when creating a computer icon [3].

While according to Kou – Chen Huang the type of computer icon is another important factor affecting a user's search performance. Different types of computer icons might have different characteristics, such as concreteness, complexity, distinctiveness, and shape [4].

The colour of an icon plays an inevitable part at designing a program icon. Of course, the model of an icon plays a distinguished part as well; For example, textual elements or figurative elements preferred in particular cultures. For instance, Vanka, as cited in Kemnitzer and Dorsa (1999), develops “ColorTool” as a general guideline and a tool for assisting interface designers to choose appropriate colors for different cultures [7]. A research that Yee-Yin Choong and Gavriel Salvendy conducted in the populations of the American and the Chinese computer users proved that the Americans preferred the textual elements icons whereas the Chinese preferred the figural elements icons [1].

The standardization of graphic programs leads to compatibility and the ability of the "yesterday" users group "to cope", but this is what goes on with the compatibility of the way of thinking and perception in the new generations that are thus "forced" to use visual symbols that do not convey recognizable information to them.

Students of today – represent the first generations to grow up with this new technology. They have spent their entire lives surrounding by and using computers, videogames, digital music players, video cams, cell phones and all the other toys and tools of the digital age. They prefer their graphics before their text rather than the opposite [9].

A properly designed and chosen icon that conveys the same meaning in different cultures can be an ultimate challenge for a designer. Icons have become individual consumer products. The function of computer icons is no longer just limited to communication (which mainly stresses being memorable and understandable); commercial requirements are expanding the role of computer icons beyond communication to match the user's preferences [4].

The designers of many programs did redesign icons or designed entirely new ones and yet some icons have not been either changed or subjected to significant redesigning. One of such icons is the icon representing data saving, "Save".

Within this context, a general and interesting question can be made: Concerning the generations of today, is there an associative cognition stimulated by experience that relates to "the small, 26-year old floppy disk" representing the icon for the "Save" command in a significant number of programs, or, in other words, what the power of the "Save" icon lies in?

As the floppy disk was the most frequently used data saving medium, there is a logical explanation for it having become the standard data-saving command icon.

As it has already been pointed out that the visual recognition is a most important element in making associations, the advantage of the floppy disk over the hard disk – that is in turn "hidden" for the majority of users – becomes obvious. However, there is another obviously correct statement nowadays – the floppy disk does not represent a primary data saving external medium any more. Simply, it is maybe high time the icon was replaced.

The problem must have been spotted a long time ago. There are new upcoming generations of "digital natives"¹ who will not know even what a floppy disk is, so the question is why no designer has tried his/her hand at a new solution to the graphic presentation of the "Save" command, or if some of them has, why the solution is not generally accepted?

Should the Digital Native students learn the old ways, or should their Digital Immigrant educators learn the new? [9].

The most frequent question to be encountered at various forums is how many people today use computers with a floppy disk drive unit. It is on us to assess to what extent have the younger but also more mature generations who have just started using computers and programming tools had the opportunity to use a floppy disk as a data saving medium; furthermore, is it the link between a floppy disk and saving data strong enough in terms of association to keep on existing.

The last question is perhaps the most intriguing one, so this short study is primarily a research into personal preferences as to the icon or symbol (floppy disk) that currently represents data saving medium.

Does the "little disk" that has already become the remote past in the ICT world arouse nostalgia and it is thus kept as a memory of the times? Or is it really so good a graphic solution for the "Save" command that a new solution has not been found yet? Or designers have not looked for the answer in the right place – the perception of the icon from the perspective of "digital natives"?

¹ *Digital Natives* (Prensky) - our students today are "native speakers" of the digital language of computers, videogames and the Internet

As there are generations that can already be classified as "digital natives" (in accordance with Prensky) sitting in secondary school classrooms, it seemed interesting to assess their perception of the "Save" icon of today, but it was also interesting to compare those results with the same ones conducted on groups of elderly people who were not acquainted with work on a computer and who attend courses where they are introduced to programme tools and work on a computer.

3. Research methods

For the purpose of obtaining relevant data, the research was done on the sample consisting of 96 students of School of Building and Craft of Čakovec (there are 130 students in the School attending Media Technician and WEB Designer courses), namely of students attending first, second, third and fourth year Media Technicians and WEB Designer courses and 16 ECDL course attendants over 40 years of age. The research was limited in number of ECDL course attendants due to their lower number.

The method used was survey. The sample included both genders, 48% males and 52% females. The students and ECDL course participants could give up at any stage of the surveying process, they could accept the survey or not and the obtained data can thus be considered relevant.

Exclusively for the purpose of this research, 9 alternative data saving icons were designed. Figure 1 shows the alternative data saving icons that were offered to the surveyed.

The objective of the survey was to obtain feedback on the following:

- whether the respondents use or have they used a floppy disk drive or a floppy disk to save data
- whether the floppy disc as the icon is the best choice for the data save command „Save“
- to what extent the icon is still associated with data saving
- is there an actual need for replacing the data save command icon
- are there any hints on what new solution would be more acceptable
- do the research result indicate the promptness of the new designer solution

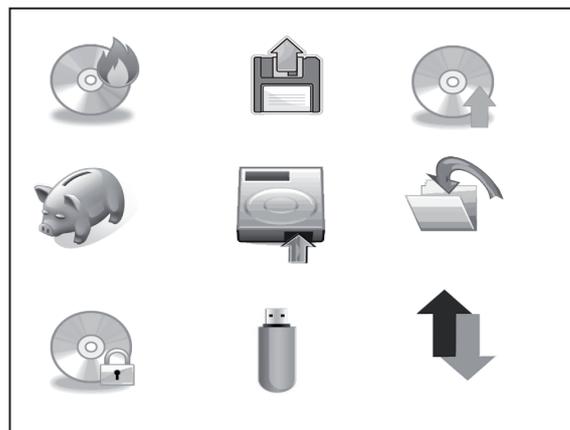


Figure 1. Alternative data saving icons

4. Research results

The students and ECDL course participants assessed the recognizability and the associative quality of the „save“ icon and answered to some of the following questions:

- Which icon does currently represent the data saving command "save"?
- Have you ever used a floppy disk drive or a floppy disk /except for the icon representing the data saving command/?

- Does the floppy disk icon for "save" make an association related to saving data to a hard disk/medium at first sight for you?
- Do you consider the floppy disk to be the best choice for the "save" command icon?

The result analysis showed that 84,38% of the surveyed students knew that the "Save" icon is a floppy. Only 15,62% of the surveyed responded negatively. The results are presented in details in Figure 2. Entirely different results were given through analyzing ECDL course attendants that show that only 63% of them know that the "Save" icon is a floppy and 37% of them responded negatively. (Figure 3.)

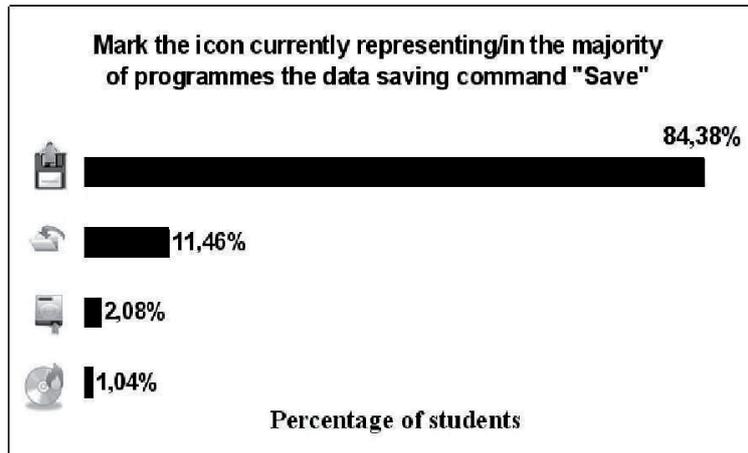


Figure 2. Recognizability of the icon - students

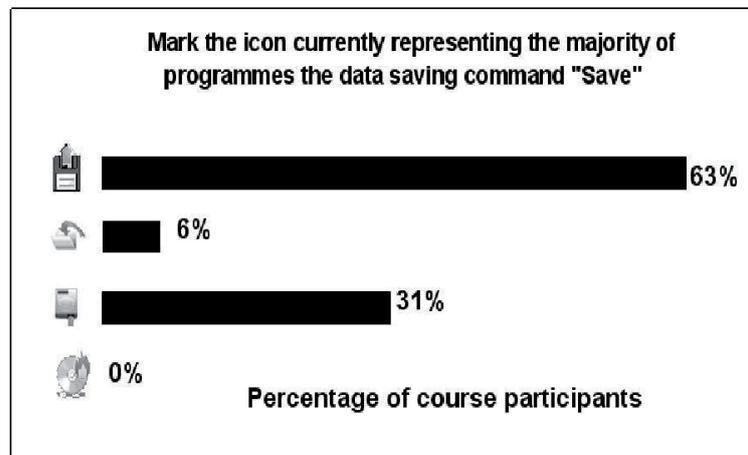


Figure 3. Recognizability of the icon – the course participants

In the question that followed - Mark one of the offered icons that should, in your opinion, represent the data saving command "Save", only 44.79% students and 56% ECDL course participants assessed the floppy disk as the most appropriate icon for the data saving command. (Figure 4, 5)

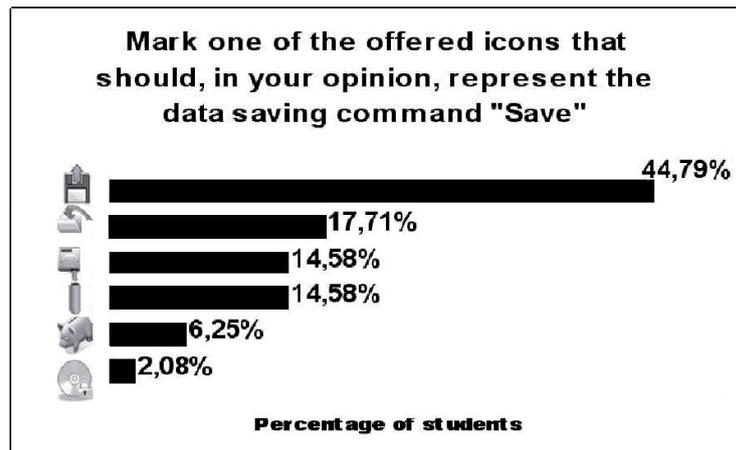


Figure 4. Association related to the "Save" icon - students

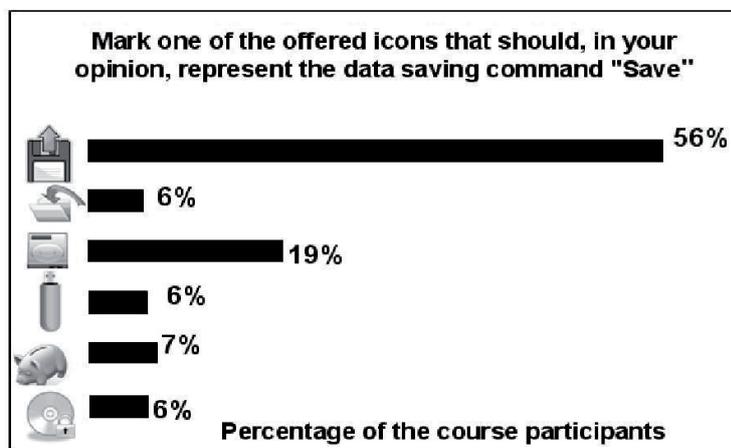


Figure 5. Association related to the "Save" icon – the course participants

The question that followed was - Rank numerically (1- the most associative to 9- the least associative) the associative quality values of the offered "Save" command icons. Only the most interesting answers are presented.

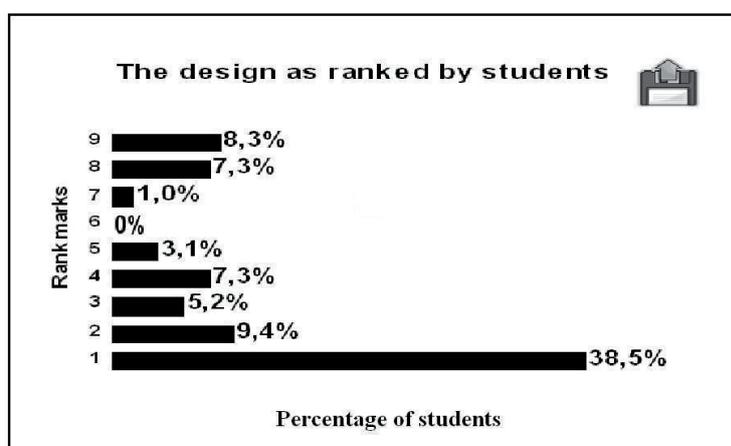


Figure 6. The floppy disk icon design ranks – student

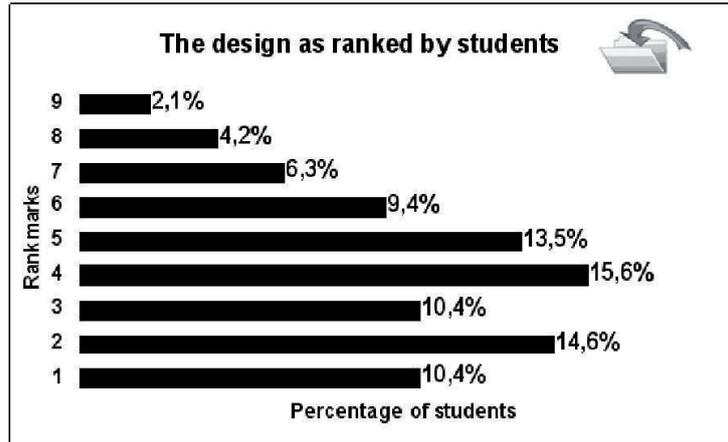


Figure 7. The map icon design ranks – student

The highest marks, according to survey results, had the floppy disk icon (Figure 6) and the map icon (Figure 7), they were top ranked, whereas the arrow icon (Figure 8) and the locked CD icon and the "burnt disk" icon (Figure 9 and Figure 10, respectively) were bottom ranked.

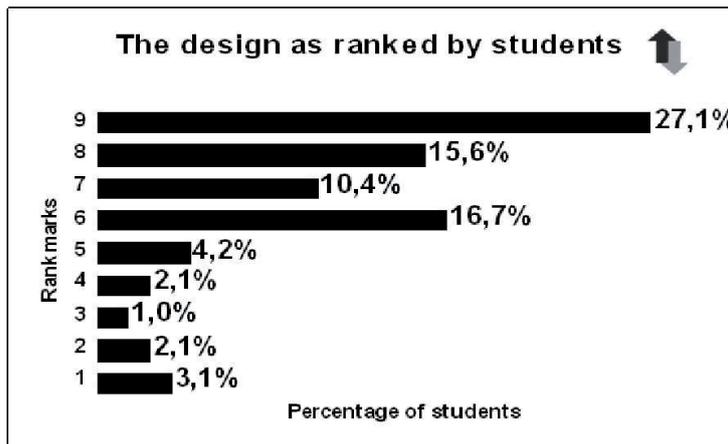


Figure 8. The arrow icon design ranks – student

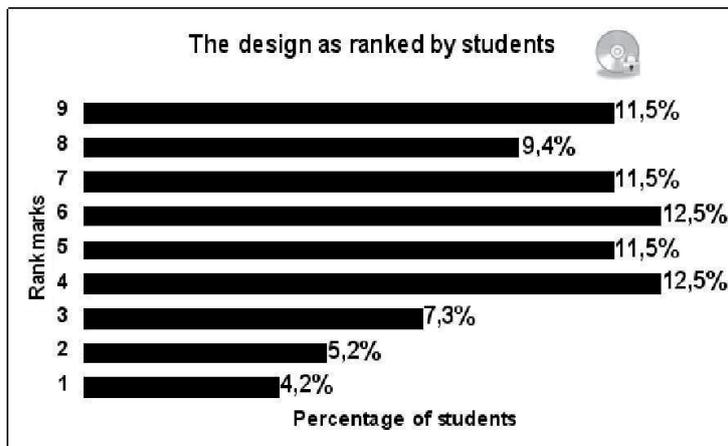


Figure 9. The "locked CD" icon design ranks – student

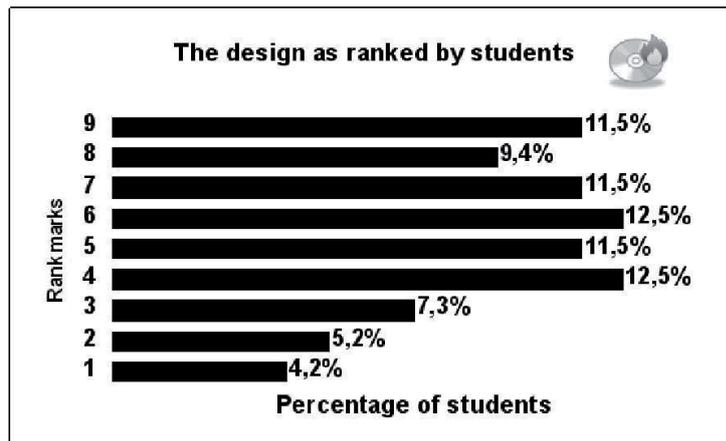


Figure 10. "The burnt CD" icon design ranks - student

Results of ECDL attendants differ significantly from the students' ones. The highest rank got the arrow icon design, and the CD disc with an arrow (Figure 11, 12). It is important to emphasize that no less than 38% of attendants gave the floppy icon mark 9 as the most inappropriate icon (Figure 13).

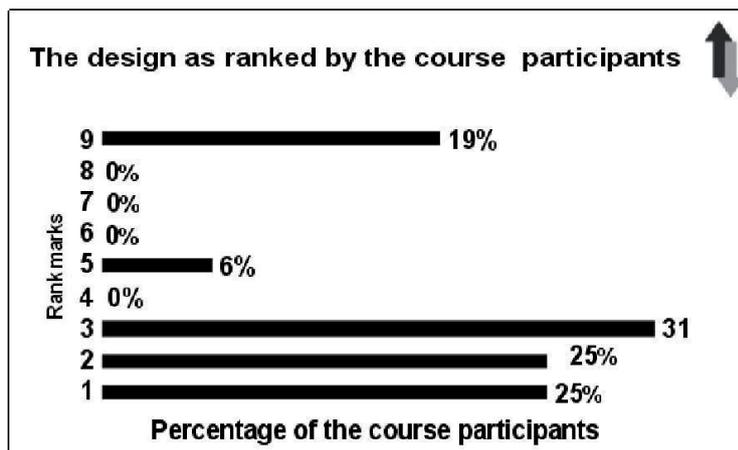


Figure 11. The arrow icon design ranks – the course participants

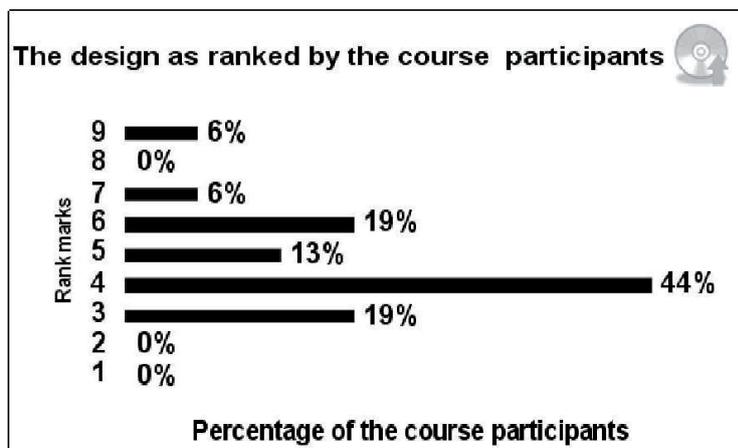


Figure 12. The CD disk with an arrow icon design ranks – student

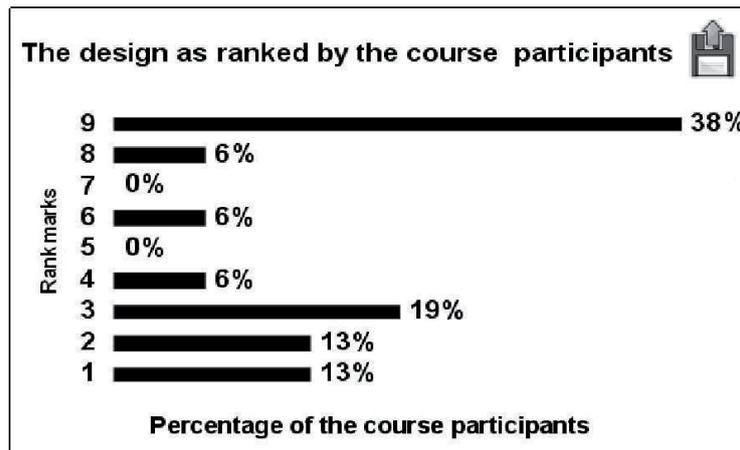


Figure 13. The floppy disk icon design ranks - the course participants

Visual messages are interlocked by the social and aesthetic conventions as well as by the culture and technology that accompany them whereas a change in the factors influencing the relations within the society causes a change in a visual message whose meaning is in turn associated with the media via which it is sent.

In order to understand the message that an image, a graphic icon or a sign sends and in order to understand it instantly, one has either to learn their "codes" (meanings) from the very beginning or to rely on their associative quality to sense the meaning.

As designers nowadays do not deal with the aesthetic values of products and services only, but as well with innovative primarily user-oriented solutions, they study the responses of cultural subgroups, their attitudes and ways of communication; The results thus showed that there was a need for a more sophisticated solution for the visual meaning of the "Save" command that has to be associative and understandable enough to become "acceptable" as a substitute for the floppy disk.

The designer projects of today are based on a substantial quantity of research that is oriented toward understanding the needs, problems and wishes of users [11].

Although the results showed that "the floppy disk" represents an "icon" in a way, which is not only the visual presentation of some tools in a graphic interface, but a universal concept as well, there was also an implication showing that the meaning that the floppy disk icon for "Save" sends had begun vanishing.

5. Conclusion

The changes in technology are rapid ones and everything else that is directly or indirectly related to the technology features a need for equally rapid changes.

Besides the need for "pleasant" virtual work surroundings that is conducive to the feeling of satisfaction, there is also a need for a positive influence on the visual mood by means of a quality design. All in all, the design should be changed in the course of time.

It is obvious that the visual icon representing the data saving command is obsolete. However, the question is whether there is a new designer solution flexible enough to follow the changes.

The research results clearly showed that there was a tendency for the visual representation of the current "Save" icon to be changed. Finally, it is important to emphasize that generations of students in question in this research had their last contact with a computer or programme tools with "Save" icon during their primary or secondary school education, which is probably the reason why over 60% of them chose the floppy icon as the most similar solution and why they gave their highest marks to this specific icon. Main reason for such a decision can be the

assumption they didn't have enough choices as substitute solutions. That was not the case with ECDL attendants because they started using programming tools and computers when floppy as data saving medium started losing its computer application, which is the reason why 38% of them gave this icon their lowest marks.

It would be very interesting to expand this research on much younger generations of attendants who, for example, go to primary schools at the time, but also on experts on programming interface design, and compare given results.

In the end we can ask ourselves a very important question: "Will we ever be in position to have a generic icon to keep the pace with data saving methods?" This is the question that is yet to be answered.

References

- [1] Choong Y.Y; Salvendy G. Design of icons for use by Chinese in mainland China. *Interacting with Computers*, (9):417-430, 1998.
- [2] Gittens, D. Icon-based-human-computer interaction. *International Journal of Man-Machine Studies*, (24):519-543, 1986.
- [3] Huang, S.H; Shieh, K.K; Chi, C.F. Factors affecting the design of computer icons. *International Journal of Industrial Ergonomics*, (29):211-218, 2002.
- [4] Huang, C. Effects of computer icons and figure/background area ratios and color combinations on visual search performance on an LCD monitor. *Displays*, (29):237-242, 2008.
- [5] Huang, C. Designing high-quality interactive multimedia learning modules Education and Multimedia Applications. *Computerized Medical Imaging and Graphics*, (29):223-233, 2005.
- [6] Ivančević, R. *Likovni govor, Uvod u svijet likovnih umjetnosti*, Profil, Zagreb, 1997.
- [7] Noiwan, J; Norciob, A.F. Cultural differences on attention and perceived usability: Investigating color combinations of animated graphics. *International Journal Human-Computer Studies*, (64):103-122, 2006.
- [8] Oxman, R. Theory and design in the first digital age. *Design Studies*, (27):229-265, 2006.
- [9] Prensky, M. Digital Natives, Digital Immigrants, Part II: Do They Really Think Differently?. *NCB University Press*, 9(6):1-10, 2001.
- [10] Shimomura, T. Visual design and programming for Web applications. *Journal of Visual Languages and Computing*, (16):213-230, 2005.
- [11] http://www.umas.hr/epapir/novi_potencijali_dizajna.pdf, downloaded: May, 3st 2009.