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The Academic Website Usability Research

The aim of the paper is to present a usability evaluation of the website of the Faculty of Management (Czestochowa University of Technology) and to identify the major strengths and weaknesses as well as challenges in information architecture and interface design of this site. The research was conducted on the basis of heuristic analysis.

Дана оценка качества вебсайта факультета менеджмента Честоховского технологического университета и идентифицированы основные преимущества и недостатки, а также проблемы в архитектуре информации и дизайне интерфейса этого сайта. Исследование проведено на основе эвристического анализа.

K e y   w o r d s: usability, information architecture, World Wide Web, website design, user-centred design, heuristic analysis.

Internet – formerly a niche and exclusive medium, today constitutes an inseparable element of our reality. What is more, its range grows continuously. Many companies and institutions noticed that websites, formerly considered just as showcases, constitute nowadays a very important channel of communication. Thus, a website that meets requirements of their clients, raises simultaneously their satisfaction and, what is more, it strengthens interest in this company or institution. According to Barbara Kudrycka, the Minister of Science and Higher Education in Poland, the times of baby bust in Poland (Fig. 1) and the abolishment of compulsory military service will contribute to the decrease in the number of students (up to 30%) in the near future [1]. Universities have found themselves in a very difficult situation and will have to use all the means to survive the crisis.

According to experts [3], the institution website that meets the usability criteria can increase its position on the market. For example, the version of the PoohCorner kindergarten's website consistent with usability norms has contributed to 700% growth of the interest in kindergarten's offer [3]. In my opinion this approach would be effective in the case of the Faculty of Management (Częstochowa University of Technology), therefore I decided to identify the challenges in the university website.
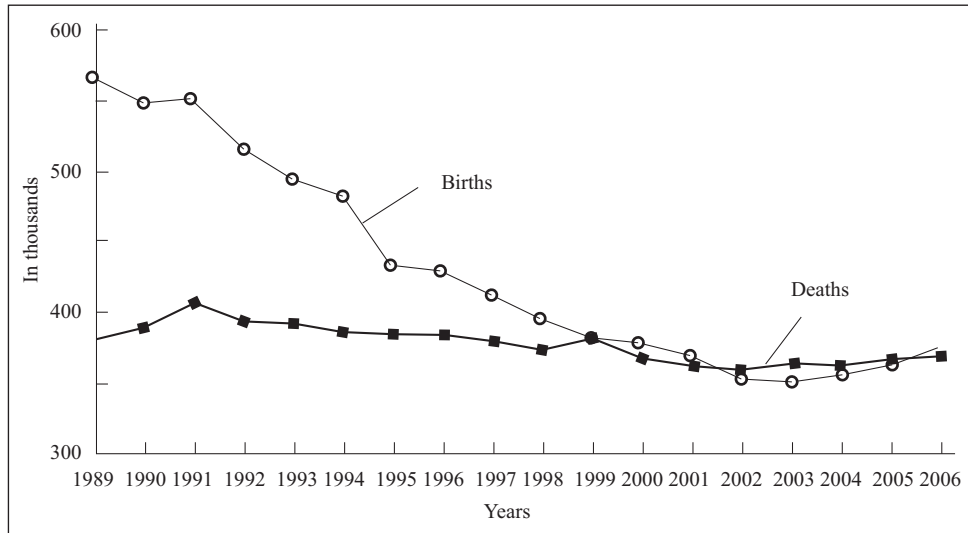
Fig. 1. Population movements in Poland 1989 — 2006 [2]

Methodology. Usability (also web-usability) is the science of websites' ergonomics. It concerns intuitive navigation and ensures easy access to requested information. A useful website is accessible for handicapped and the presented information have logical structure.

My research is based on heuristic analysis (audit) which is conducted in order to find weak points of the website. The following points present advantages of applied changes according to heuristic analysis:

easy navigation;

easy search of information;

intuitive use of functions;

content readability;

clients satisfaction, loyalty and trust;

institution image improvement;

better position in search of engines results (SEO).

Additionally, the Nielsen Norman Group postulates concerning usability have been used in this research [4].

Case study. The Faculty of Management website is available online at http://zim.pcz.pl/.

I. *Website structure.* The website structure concerns the content arrangement. In the case of http://zim.pcz.pl/, the structure has three asymmetric columns, where menu is on the left side (Fig. 2).

II. *Navigation.* A navigation constitutes a basis of hypertext documents. Among website designers there exist different tendencies concerning menu lo-
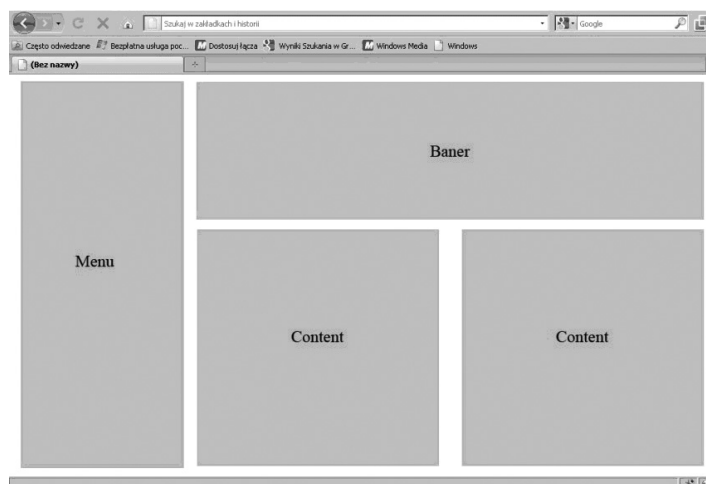
Fig. 2. Website structure

cation. According to Jakob Nielsen research, 30% of all investigated websites have a navigation menu on the left side (Table 1) [5].

The investigated website has menu on the left side. Although this is a very popular solution (see above-cited numerical data), there are strong arguments pro right-sided menu:

when we do not use a mouse (pointing device), its cursor rests usually on the right side of computer screen; hand argument [6];

the majority of people is right-handed;

brain argument [6] «(…)every cerebral hemisphere has a tendency to pay attention to things located on the opposite side of the body [the left on the right, the right on the left] (...), where the left cerebral hemisphere is more efficient than the right. According to this, people attention (...) can be attracted on the right, because there is no equilibrium between cerebral hemispheres.» [7].

On the other hand, we read from left to right in all western alphabets that can indicate the advantage of the left-sided menu.

Table 1. **Tendencies concerning menu location** [5]

Navigation pattern	Percentage
Left side menu	30
Horizontal overlapping menu	30
Links at the top of the page	18
Categories in the middle of the website	12
Cascade menu	10
Other	6

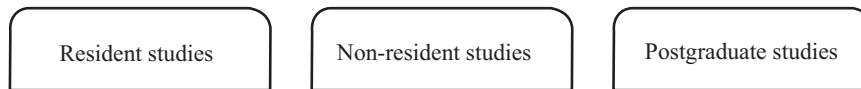| Resident studies | Non-resident studies | Postgraduate studies |

Fig. 3. Horizontal overlapping menu – content distribution suggestion

A very strong disadvantage of the Faculty of Management website navigation is the lack of visible content distribution. It is difficult to find an educational offer of resident studies, non-resident studies or postgraduate studies at once (different scripts of website use). The good idea to solve this problem is application of horizontal overlapping menu (Fig. 3).

Additionally, there is a lack of navigational element called breadcrumbs, which shows a path covered by user within website structure, for example:

Home > Educational offer > Academic year structure.

On the one hand the existing navigation may contain a long list of links, it is easy to scale and the length of links names are not crucial. On the other hand such menu occupies a lot of space, and the items of menu placed below a page break are invisible.

III. *Logo.* The logo of the Faculty is placed on the left upper side of the screen, that is recommended by web designer. The other advantage is that when we click on this logo, we are being sent back on the main page (exception: there is no return by the logo link from webmail).

IV. *Search engine.* There is a lack of a search engine on the website.

V. *Graphical user interface.*

Buttons. There is no indication which navigation button has been pressed. What is more, names of the buttons are mixed: when we press Conferences button (7th position in the menu), in contrast to other buttons it changes its colour (red) and the place in menu hierarchy (5th position in the menu)!!

Hyperlinks. The hyperlinks have blue colour that is correct, but there is no useful and conventional underline. What is more, the visited hyperlinks have black colour, which belongs to colours reserved for active hyperlinks [4].

Scroll bar. The scroll bar is classic, thus there is no problem while running it in different web browsers.

Cursor. There is a proper change (from arrow to hand indicator) in the case of pointing hyperlinks.

Icon. There is a lack of useful icons (for example Home), which send back a user to other pages.

VI. *Advertisement.* While visiting the Faculty website, the advertising banner concerning postgraduate studies is visible. According to researches, such a

solution is not recommended due to banner blindness effect (web visitors ignore advertisements unwittingly), which is very often observed [8].

VII. *Typography.*

Font. On the Faculty website, sans serif Verdana font designed by Matthew Carter (premiere: July 8, 1996) has been used. It is the modern, simple and professional font that ensures the best legibility.

The accessibility of the fonts has been defined correctly (definition of the family in the Cascading Style Sheets):

BODY {font-family: Verdana, Arial, Helvetica, sans-serif;}.

Unfortunately, navigation menu comprises graphic images, therefore amblyopic people have no chance to enlarge these items.

Font size. The font size (10—12 points) is suitable for its target group (students) (Table 2).

Font colour – black and blue.

1. *Contrast between background and font colour* (tested with Colour Check available online at http://www.etre.com/tools/colourcheck/). Results:

Your colour combination of #000000 and #ffffff passes Checkpoint

2.2 Brightness

The difference in brightness between your foreground and background colours is sufficient and meets the standard recommended by the W3C.

Contrast

The contrast between your foreground and background colours is sufficient and meets the standard recommended by the W3C.

A sample of how text will appear using the colour combinations you specified is shown below.

This is a sample of how text will appear using the colour combinations you specified. Foreground: #000000. Background: #ffffff.

Note that passing this test does not assure readability. Certain colour combinations can pass Checkpoint 2.2 and still cause readability problems, as illustrated below. You should carefully consider the appropriateness of the colours you choose and their in tended purpose.

2. *Colour contrast* (tested with Colour Contrast Analyser available online at http://blackwidows.co.uk/resources/color-contrast-analyser.php). Results:

Table 2. **Font sizes according to user age** [5]

Readers (difference according to age)	Font size, points
Children	12 — 14
Young people	10 — 12
Standard	10 — 12
The Elderly	12 — 14

Input
Background: #FFFFFF
Text: #000000

Colour Brightness: 255

The difference in brightness between the two colours complies with the W3C threshold of 125.

Colour Difference: 765

Warning: This figure significantly exceeds the W3C threshold of 500 and may create problems for people with dyslexia - especially when used with bold text and/or headings. Consider reducing it to below 600.

Background: #FFFFFF
Text: #0031c6

Colour Brightness: 203

The difference in brightness between the two colours complies with the W3C threshold of 125.

Colour Difference: 518

This complies with the W3C threshold of 500.

Paragraphs format. Text is divided into blocks containing 5-10 lines. It ensures the light between paragraphs, that makes the text more readable. Unfortunately, text alignment (justification) is improper. Comparison:

| Justification	To left
Czestochowa University of Technology is the biggest public university in region. The fifty-year scientific and didactic activity of Czestochowa University of Technology enrolled permanently in history and tradition of the town. In all-Polish rankings of public universities, Czestochowa University of Technology places in the lead of universities with similar educational profile.	Czestochowa University of Technology is the biggest public university in region. The fifty-year scientific and didactic activity of Czestochowa University of Technology enrolled permanently in history and tradition of the town. In all-Polish rankings of public universities, Czestochowa University of Technology places in the lead of universities with similar educational profile.
Changes after 1989 caused growth of demand at labour market for highly skilled specialists in management. To adapt teaching system to prevailing conditions, organization and management in the machine-building industry specialization has been established at Mechanical Engineering Department. The next stage was the foundation of the Chair of Organization and Managementin 1991.	Changes after 1989 caused growth of demand at labour market for highly skilled specialists in management. To adapt teaching system to prevailing conditions, organization and management in the machine-building industry specialization has been established at Mechanical Engineering Department. The next stage was the foundation of the Chair of Organization and Managementin 1991.
Intensive development of the Chair and increase in the number of students led to the establishment of the Institute of Management, which acted as the basic organizational unit on the terms of faculty. Further dynamic growth...	Intensive development of the Chair and increase in the number of students led to the establishment of the Institute of Management, which acted as the basic organizational unit on the terms of faculty. Further dynamic growth...

Text source: http://zim.pcz.pl/eng/informacje/
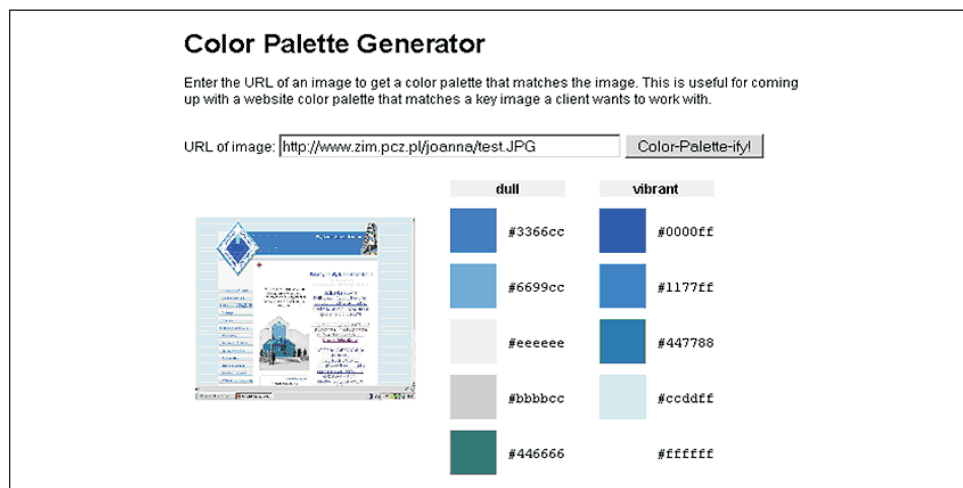
Fig. 4. Colour Palette Generator – test results

VIII. *Colours.* Thanks to the Colour Palette Generator colours at the Faculty website have identified (the Colour Palette Generator available online at http://www.degraeve.com/color-palette/) (Fig. 4).

Unfortunately, such colour scheme does not belong to the following the colour matrix (216 colours) recommended for websites (Table 3) [5]:

<div align="center">

Does not belong to the colour matrix:

ice-blue foreground   #daedfe;

navy-blue banner   #3abccb;

light grey background #fbfbfb;

menu   #d7e3ff.

</div>

IX. *Website reception by web visitors with visual impairment* (tested with Visual Impairment Simulator for Microsoft Windows® available online at http://vis.cita.uiuc.edu/downld.php).

X. *Website activity in different web browsers* (tested with Visual Browser Shots available online at http://browsershots.org/).Only results indicating problems have been presented:

Linux – Opera 10.00, Opera 9.64, Conqueror 3.5 – does not work at all.

Table 3. **Colour matrix**

Percents	0	20	40	60	80	100
0 — 255	0	51	102	153	204	255
00 — FF	00	33	66	99	CC	FF

Linux – Firefox 2.0, Firefox 3.5.2, Iceape 1.3.13, Diallo 0.8, Seamonkey 1.2, Shiretoko 3.5, Flock 1.2.1 — problem with Flash;

Windows – Opera 8.54, MSIE 5.5 — problem with Flash;

Linux – Iceweasel 3.0.4 — problems with graphic.

Conclusions. According to the results of the study presented above, there is a lot of challenges in the site's information architecture as well in the interface design. The improvement of the Faculty website might bring advantages to students as well as the Faculty itself.

Дано оцінку якості вебсайта факультету менеджменту Честоховського технологічного університету та ідентифіковано основні переваги і недоліки, а також проблеми в архітектурі інформації та дизайні інтерфейсу цього сайта. Дослідження проведено на базі евристичного аналізу.

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