CORRELATION OF PRACTICAL EXPERIENCES OF STUDENTS AND THE CONTEMPORARY PROGRAMME OF BUSINESS INFORMATICS

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Abstract: This paper is conducted with the aim of representing the importance of "Digital Literacy" in a modern environment; which is precisely the topic being covered in the course of Business Informatics (BI). It shows the steps taken to introduce the contemporary environment to students - future managers, by simulating the work environment they will doubtlessly face upon graduating. Additionally it addresses some of the problems encountered during the course as well as students' internships.

Keywords: informatics, education, management, practical work

1. INTRODUCTION

The great pre-Socratic Greek philosopher Heraclitus once said: "The only thing that is constant is change". This statement becomes evidently more true as time goes by. Now, more than ever, radical changes occur not only on a daily, but even on a minutely basis. We are all witnesses to how much change has been introduced into medicine, art, technology, education, tourism, travel, business, etc. in the past decade alone.

Thanks to some of those changes, especially in the field of Information and communication technology (ICT) everyone is in a possession of either a "smart" hand-held device or a personal computer, if not both. Their aim is to help us do day-to-day activities, making them faster, more easily executed, more precise and overall better. Be it something as trivial as making a spreadsheet, a presentation, writing an essay or a report, linking and accessing numerous databases, we can spend less time and effort if we were to use the tools provided to us by the age we live in [1]. In order to operate them, a certain training must be undergone. So in simple words, being literate is not sufficient enough nowadays; in order to keep up with the surrounding society one must become digitally literate. The American Library Association defines digital literacy as "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills." [2] This roughly translates to having the need to quickly adapt to new things, mostly regarding previously-mentioned day-to-day devices, and simply knowing how to operate them. These skills are more easily acquired the younger the learner, since their capacity for learning is much greater than that of an adult. Naturally though, they aren't the ones who use these tools for business purposes.

In order to adapt to these new devices, education process must be changed, and according to many studies these changes are not happening fast enough [3] [4]. However there are a lot of factors that are drawbacks for ICT education. Some of them are lack of funding to support, the purchase of hardware and software, a inappropriate training among established teachers, a insufficient motivation etc. [5]. Open source software packages could overcome some of these difficulties, and is often the first choice among the implementation of a learning management system into education process [6].

Hereby, we should focus on teaching the teenagers, as well as young adults and adults how to best use the technology available to their advantage. And that is exactly what the course of BI is aimed at. Due to first-hand experience, we noticed that students, even though they are exposed to technology from a very early age, still lack crucial and basic knowledge of how it operates, and what it can be used for. As far as they are concerned, the only use for their devices is accessing social media and having a certain presence or a persona. A good example for this is the fact, that even though they require an email address to join said media, they have no experience in sending emails themselves. Since something as trivial as sending electronic mail is present in a generic adult's life on a daily basis, it is important to prompt students to send as many emails as possible teaching them their form, proper ways of writing, attachments, etc. Furthermore, the best ways to prepare graduates for their post-graduate life is simulating real life scenarios, showing them what they will have to face once they start working.

2. WORK ENVIRONMENT SIMULATION

The simulation process consists of activities such as:
1. Opening an email account, and learning how to compose, attach and send electronic mail;
2. Getting an insight into how networks function and what actually happens "behind the curtain" of connecting to the Internet;
3. Learning about cyber security
4. Getting to know most common text, spreadsheet and slide processing programs
5. Getting in-depth knowledge of Microsoft Office (MS) Word programme and its functions
6. Getting intermediate knowledge of MS Excel, understanding how and when to use functions and other formulae
7. Basics of MS Powerpoint and tips for better presenting
8. Basics of Windows Movie Maker and uploading videos to YouTube
9. Social media and marketing
10. Alternatives to the most common commercial programs (OpenOffice, LibreOffice, Web 2.0)

Understanding how much the validity of information can and does change in short bursts of time, something once thought to be the norm, can be disputed and proven unfit or even wrong with adequate data backing it up. Keeping this in mind, the course BI prepares and presents students with "timeless" information. The emphasis are put on the required skills and traits a future manager should have, in order to accordingly handle any and every problem one will face.

The simulation begins with learning about the use of electronic mail in a contemporary workplace. This includes creating a Gmail account, as well as composing, forwarding, replying to electronic mail along with enclosing documents and folders (zipped archive files). The course also ensures to include some basic on-the-spot text formatting and tips for writing more concise and to-the-point e-mails, as well as the proper language that ought to be used while composing this type of correspondence.

Naturally, while staying with the topic of being online, attention is paid to how networks actually operate "behind the curtain". A brief history, with basic terminology explained and what actually happens when a person, for example, sits in a cafe and connects to a WiFi network.

According to statistical data provided by "Statista GmbH", a leading provider of market and consumer data, in 2018 there were 23.14 billion devices connected to the Internet [7]. Which is just over three devices per every single person on planet Earth. Graph below shows the estimation for near future.
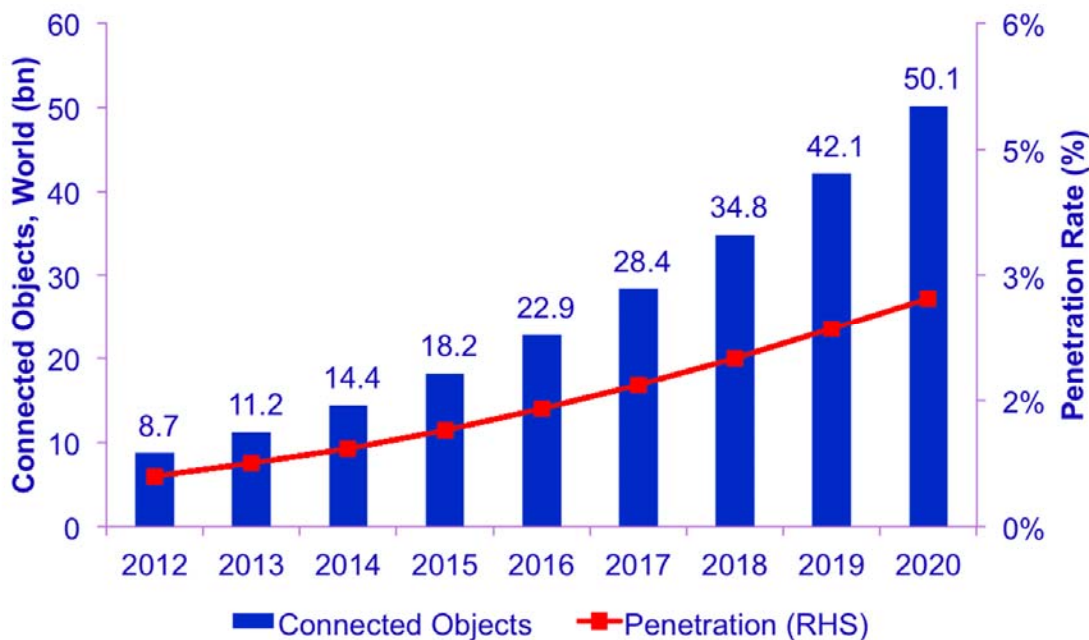
Picture 1: Number of expected devices connected to the Internet
(Cisco, www.cisco.com)

On the topic of Internet, cyber security is becoming an increasingly important topic needing to be addressed. Lots of teenagers are not aware of just how dangerous their online presence can be, and how many problems could be prevented simply by taking some precautionary measures. A lot of these are introduced to the students, as well as some of the risks.

2.1. Text Processing with MS Word

The example for some hands-on skills would be as simple as text processing applications; students are taught on the Microsoft Office Word, mainly for its popularity and presence in the business world. However, teachers aim to teach the very use of text processors rather than the said one in particular. Its functions are indepthly covered, but the nature of said application is basic and present in many different brands. And to prove that, LibreOffice and OpenOffice variants of text processing applications are also introduced to students.

Upon finishing the course of BI, the student is able to overcome any obstacle the world of text processing might introduce.

Students are also encouraged to use keyboard shortcuts which are used throughout the world of business informatics regardless of the application. This will prove to be very useful in their future work environment making them finish tasks more efficiently and faster - directly resulting in the creation of a more competent and competitive workforce.

Teaching students what language to use, and how to talk and write formally is a crucial part of their future, and in that sense, it is very important how to word one's electronic mail directed to colleagues on one hand, and his superiors on the other.

2.2. Spreadsheets in MS Excel

After getting a good grasp on how to format text and basic tables, BI moves to the more complex, an application less-frequently used by students, however equally present in contemporary work environment - Microsoft Office Excel. MS Excel is a *spreadsheet* based application using a grid of *cells* arranged in numbered rows and letter-named columns to organize data manipulations like arithmetic operations. It features calculation, graphing tools, pivot tables, and a macro programming language called Visual Basic for Applications. Using this programme, students are taught how to use functions such as *If, count, countblank, vlookup, sum, min, max, average, countif*, and many more. Alongside the previously mentioned, the students are also stimulated to think logically and see what is being asked of them, assessing the situation before ever thinking about what and how they would do that in the program. After making sense of how the program functions on a base level, they are asked to do more complicated tasks, presenting results on various charts and graphs and analysing the data before them. Similarly to MS Word, the students are introduced to some cost-free variants also used in the work environment.

Both MS Word and MS Excel are individually tested, making sure the undergraduates are equipped with the knowledge which will serve them once they exit the doors of student life.

2.3. Presenting with MS PowerPoint

Following the completion of previous chapters, the story continues apprehending the tools of a modern office. Regardless of one's position and job title, presenting is almost a given. People have done it for centuries; in the form of teaching, introducing a new product to the market, reporting to their superior etc. Presenting is one of the most efficient tools a manager can have. To some, it comes naturally to fearlessly stand in front of a crowd and talk about various topics, while a lot of people have a problem, which is where the presentation itself plays a big part. If you are confident in the presentation itself, you are more likely to do well in the spotlight.

While BI majorly focuses on the technicalities of creating a digital presentation, it also pays a fair amount of attention to tips on how to present; how to behave on the "stage" regardless of the presentation being digital or analogue. History remembers countless examples where it was the presentation of the product that actually did the selling, and not the appeal or the quality of the products itself. In a way, presenting is the same as the packaging of a product, especially when it comes to selling services - since they have no physical form and therefore aren't tangible, promotion must be done flawlessly.

In order to prepare students for something which will be almost a daily task in the not-so-distant future, 10% of the final grade consists of the practical work. One half of the practical work consists of students being encouraged to take a topic of their own choosing and create a brief presentation showing what they had learned. The other half will be discussed in the following part of *the simulation* which enlists interesting video-related topics.

2.4. Windows Movie Maker, YouTube, Social Media & Marketing

Nearing the end of the course, the topic is changed to students' most familiar headline in the BI programme - Social Media. For that very reason, this topic is left to be discussed at the end, and not much time is devoted to explaining how it functions, but rather how it can and does contribute to contemporary jobs. Alongside YouTube, social media are one of the, if not the most used tool for marketing and promotion and in that sense are introduced to students so they can keep up with world's trends.

The second half of the practical work is creating a short video in Windows Movie Maker, putting some music in the background of it, and posting it to YouTube. This part of the course mainly encourages students to follow their own initiative and pursue video-making in greater depth giving them only the basics of the program and the platform to post them on.

3. FACING THE PROBLEMS

As is the case with everything in the world, there are some problems or, in some cases, obstacles that need addressing. These are not exclusive to either the course or the internship, but are integrated in both and are equally important.

3.1. Encountered problems during the course

Being digitally literate is as important for adults as for students (young adults). People who have already been employed for a number of years and have a lot of working experience behind them may not prove to be as useful, compared to a digitally-literate post-graduate who is readily available to learn and adapt to the working environment.

This means, that no matter how good a worker is, if they themselves don't work on improving their knowledge, making it up-to-date, they are at a great risk of losing their job. Changes happen very rapidly, and one of the main traits of a good manager is to think proactively, seeing what is going to happen before it does, which also includes changes related to digital literacy. Be it something as simple as working a piece of daily office equipment, to some in-depth desktop or web application, employees must be upgraded the same as the equipment. In some cases, the employer will provide training for their employees, but, in some cases, it is cheaper to find a new person, more specialised in the job itself.

Whilst going through all these topics, it is easy to notice where students have most background knowledge, and what they find easiest to pick up. For example, the hardest thing to learn, seems to be working in MS Excel. The nature of working in this program is very different to something they had been accustomed to while editing a text or making a presentation. It is interesting to point out that the program itself isn't the root of the problem, nor are its features, but rather the way of having to operate it. Firstly, the use of the mouse is greatly reduced compared to previously mentioned applications, and much more attention is put on the keyboard. Secondly, the use and knowledge of the English language is immensely important in operating this program, whereas students who have a bad background in this field face much greater difficulty, purely by not understanding what the feature does, making the built-in instructions pointless. Thirdly, being first-year students, and lacking familiarity with how the system as a whole functions, students refrain themselves from asking questions and asking further explanation. Finally, and possibly the problem which leaves little-to-no room for solving, is the inability to think logically. Students have shown great difficulty in actually understanding what is being asked of them; and this problem seems to be worse as newer generations arrive.

In accordance to seeing the importance of addressing these problems, more attention is paid to this chapter by taking time, and explaining with great care anything the students might contemplate over. Simply put, more classes are devoted to this program.

3.2. Encountered problems during the internship

Having spoken to students, little to no problems have been encountered during the internship regarding working in previously mentioned programs or operating the business email. This would propose that the course of Business Informatics does well to prepare students for work they encounter not only in their mandatory internships, but also their future in general. Doing even the simplest jobs will require knowing how operate programs such as MS Word, Excel and PowerPoint or the open source alternatives.

4. THE STUDENTS' ACHIEVEMENTS

Before the final exam, students earn points within two colloquiums and the practical work related to PowerPoint. Each colloquium consists of two parts - theoretical and practical.

The theoretical part of the first colloquium covers Internet-related knowledge and the practical part addresses text processing. Table 1 shows the achievement of students on the first colloquium.

Table 1: The achievement of students on the first colloquium

Achieved points	Theoretical part	Practical part
0-50%	82%	20%
51-60%	0%	10%
61-70%	16%	11%
71-80%	0%	16%
81-90%	0%	28%
91-100%	3%	15%
Average	1.33 of 5 (27%)	10.45 of 15 (70%)

Source: Results of the colloquiums for the subject Business Informatics, 2018

The theoretical part of second colloquium covers PowerPoint, light video editing in Windows Movie Maker and media-publishing on YouTube. The practical, however consists of numerous tasks within the MS Excel spreadsheets. *Table 2* shows the achievement of students on the second colloquium.

Table 2: The achievement of students on the second colloquium

Achieved points	Theoretical part	Practical part
0-50%	72%	19%
51-60%	0%	10%
61-70%	9%	5%
71-80%	0%	14%
81-90%	0%	9%
91-100%	3%	28%
Average	1.21 of 5 (24%)	10.52 of 15 (70%)

Source: Results of the colloquiums for the subject Business Informatics, 2018

Looking at the results from the theoretical part of both the colloquium, we conclude that the results of the students' achievement are not satisfactory. In the practical part, the results are better. Experience of the colleagues who teach other subjects is quite similar to our own. As for the first colloquium, such results have been quite shocking as we believe that the subject, Internet related things, ought to have been quite familiar to students. Since their birth, they have been surrounded by modern technology, however we found that their use outside pure entertainment is quite foreign to them. Furthermore, students' achievements in the practical part of the second colloquium is unexpected, because certain knowledge of mathematics and computer science is necessary for a successful understanding of the basics of spreadsheets.
Students with better results believe that the problem isn't the teaching material itself, which is perceived to be rather understandable and not difficult, but rather their colleagues not paying enough attention to it, and the classes in general.

5. ADDITIONS AND SOLUTIONS

One of the things not covered by the course that students do come across while on their internship, are the services of the website booking.com. As quoted by Wikipedia: "Booking.com is a travel fare aggregator website and travel metasearch engine for lodging reservations. It is owned and operated by and is the primary revenue source of United States-based Booking Holdings. Booking.com is headquartered in Amsterdam". For a tourist, booking.com is a great place to find deals regarding accommodation in almost every country in the world. With everything being in one place, and the interface being very simple and easy to use, it represents a great tool for finding accommodation. From the property-owner's point of view, booking.com is a unique opportunity to reach a certain previously-unreachable demographic - global market. Something which would previously have required substantial financial investment, now is within everyone's reach. All you require is an online presence.
Probably the most efficient way to do this would be by making a guest account, and an admin one, showing both sides of the curtain. This would result in presenting exactly how whole system functions and how it can be advantageous to students. Even the smallest property owners advertise themselves on this international platform, making it vitally important to the job of a future hotel or TA manager. Keeping in mind that booking.com does not have a training course as one of its features, in the fourth year of undergraduate academic studies, the course Information and Communication Technologies (ICT) in Hotel Management and Tourism offers students the opportunity to get acquainted with similar features through working with a software of the same nature - specifically designed teaching website with similar characteristics and features as booking.com.
Information and communication technologies (ICT) is an extended term for the information technologies (IT), which emphasizes the role of unified telecommunications, computer systems, necessary software, information storages and multimedia systems which all together allow access, storage, transmission and processing of information to the users [8].
Not only does it serve as a digital literacy teacher, but also as a general guide to being a modern-day manager. One of the first steps we plan to do in this regard is to create a technical environment that looks more like a modern business environment that awaits students after graduation. This includes expanding the range of required software, as well as introducing adequate hardware such as dedicated device with touch screen. [9]

6. CONCLUSION

Contemporary science introduced a new age. An age of automation, globalisation, and being in a constant fight to keep your place on the market. Using the state-of-the-art technology, digital literacy has become a must in the world of modern management. This allows many benefits to working environment and educational process. One particular interesting for this study is possibility of 24/7 time for learning. Thus any individual can govern his/hers timeframe that is meant for education and be more efficient [10]. In that way education truly can be an active process of constructing

knowledge rather than acquiring it [11]. So that any student can gain personal understanding, and not just be in constant process of memorization of fact [12]. And this is particularly important for education in field of modern ICT, because of constant need for implementation of knowledge and skills in everyday activities.

In order to keep up, the course of Business Informatics is teaching students how to overcome obstacles by not only using the modern technology provided, but also a logical way of thinking, and analysing the situation and its solutions before acting on them. The focus is put on the use of Microsoft Office package, most-commonly present in a contemporary working environment, with the highlight put on three applications from the package. Those being MS Word, MS Excel, MS PowerPoint, followed by some open software alternatives. Apart from teaching how to use the programs, BI also teaches how to properly write emails, how to present, and make the best, environment-proof presentation.

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