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Perception of Educators on the Mediation Role of Ease of Use in Predicting the Relationship Between Teacher Competence and Use Behaviour

Abstract:

This paper analyses the relationship between the teacher technology competence and their use of technology under the mediating influence of ease of use. The paper presents a set of results that are empirically tested on a sample of 387 high school and higher secondary school teachers from across 14 districts in Kerala, a southern state in India. A majority of these respondents had a teaching experience of more than eleven years and had been using computers for more than five years. The results reveal that technology competence among these teachers was moderately but positively correlated to their actual use of technology and this relationship was found to be mediated by ease of use of technology.

The paper discusses the implications of these findings and makes recommendations to leverage these relationships so as to achieve greater technology integration.

Keywords:

Teacher technology competence, use behavior, ease of use, mediation, technology integration

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Introduction

Educational technologies have brought about fundamental differences to the teaching learning environment in schools. While application of appropriate technological processes and the practice of ICT facilitates learning in students and elicits improved performance, there is an ongoing debate on the varied roles of teachers in ICT Integration[1][2][3]. Although these educational technologies donot curb the existing teacher roles, they do introduce some newer redefined responsibilities for teachers of being more than mere instructors to becoming facilitators and co-creators of the learning environment.Teachers now have the onus of mediating and collaborating between the students and the vast ocean of information made available by the digital world so that students are able to model appropriate ICT behavior[4].

Researchers have pointed out that teachers' attitude towards technology as well as their technology competencies impact the extent of use of digital tools[5].Technophobic teachers could pose a great threat to the smooth implementation of ICTs in schools as they focus on a large set of variables prior to the acceptance of technology.The continuance of technology acceptance by teachers concentrates on fundamental aspects like ease of use and usefulness of technology. This paper attempts to gauge the relationship between teacher competence and use behavior under the mediating influence of ease of use [6].

Literature Review

For teachers to be able to successfully integrate ICTs into teaching,they would require a vast new array of ICT competencies which include creativity, flexibility and logistic skills for assigning work to student groups and collaborating with them. To assume the new roles, teachers would need to upgrade their existing ICT competencies and acquire new pedagogical skills to be able to successfully integrate technology in the classroom[7]. Research reveals that several teacher level factors influence the implementation of innovative ICT usage in education. Teachers who are 'personal entrepreneurs' are important for the integration of ICT in education [8].

While there are mixed opinions on the policydesign relating to implementation of ICTs in schools versus their actual use of digital technology in the classrooms,several studies suggest a close correlation between teachers digital competenciesand their professional use of technology and there are others who point out the close correlation between teacher attitudes' towards technology and the actual use of digital tools in the classrooms[9].

Though there is a lot of literature pointing out the array of facilitating factors like access to technology, training for teachers, favourable policy environment that would ensure smooth ICT integration into teaching learning paradigm there is little proof to establish the high level technology use by the teaching community. This suggests that teachers' pedagogical beliefs may also have a great impact on the way they improvise on the use of technology in the classroom environment[10].

As there is a strong relation between teachers' pedagogical beliefs and the actual technology integration practices a deliberate initiative may be required to change these beliefs along with a focused emphasis on teachers' professional

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development[11].It was found that the Teachers' creative use of technology in classrooms are guided by environmental, social, personal and curricular issues[12].

Teachers are dependent on the school administrators for technology equipment resources as well as other support facilities to successfully integrate technology in to their classroom and have expressed the need for computer integrated training as many among them are limited to using internet from among the wide pool of computer application tools for teaching and learning[13].

To successfully integrate technology, there is agreement in the literature that a change in pedagogical practices that make ICT less peripheral in classroom teaching[14] would be required. In another attempt to study reasons for slow progress in technology integration by teachers the researcher found that perceived usefulness of computer technology had a direct and significant impact on the intention to use it while the ease of use of technology had an indirect yet significant impact on the intention to use it. The studyalso reiterated that subjective norms, emerging from the influence of external expectations had no direct or indirect effect on the intention to use technology [15].

Teacher Technology Competence

Teacher Technology Competence is the teachers' perception on ability to use ICT for personal and professional purposes. Teachers' ICT skills and ICT competence are critical factors that determine their decisions to apply ICT in their instruction.In the paper titled "Teachers' Decisions to Use ICT in Classroom Practice: An Investigation Based on Decomposed Theory of Planned Behavior " the authors pointed out that primary factors determining the use of ICT in classroom practice relate to facilitating conditions in the schools and teachers' self-efficacy. On the other hand, perceived usefulness of ICT, perceived ease of use, compatibility and normative beliefs seem to have minor impact on teachers' actual usage of

ICT in classroom settings [16].Teacher professional development could be viewed as a schematized, early, perpetual, unswervingand stage-wise process of professional development of educators in accordance with professional competency standards and frameworks. Teacher professional development would also include training in the adaptation to the evolution of change of the profession of teachers to managers of education systems. Professional development in the context of ICT can be placed under three broad headings, namely learning how to use ICT, learning through ICT and integration of ICT in teaching and teacher learning .

National policy on ICT in School Education, MHRD, India (2009, revised 2012) presents three stages of ICT literacy that constitute set of competencies for students and teachers: basic level includes ability to operate a computer, manage data, word and data processing tasks, troubleshoot basic storage, use input output devices, email - web surfing - search engines, anti-virus, operate- manage content from external devices (sound recorders, digital cameras, scanners etc.); intermediate level includes ability to create and manage content using software applications, use digital devices, websites, search engines; advanced level includes capability to use database applications, use of ICT for problem

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solving, audio-video communication, research, documentation, presentation, cooperative - collaborative learning and handle cyber - copyright issues. These levels or stages constitute set of ICT competencies for teachers and students. [17]Based in Netherlands a study explored the factors that stimulated or impeded the innovative use of ICT by teachers in schools,defined innovative use of ICT as the applications supplementing the educational objectives derived from the needs of the current knowledge society. The paper emphasized the need for teachers to act as personal entrepreneurs more than anything else for successful integration of ICTs in schools. The paper highlighted school level factors and involvement of teacher training institutes having limited importance in such implementations.

Research has shown that will (positive attitudes), skill (technology competency), and tool (access to technology tools) are all essential ingredients for a teacher to effectively integrate information technology into classroom practices.The results indicated that lack of teacher anxiety was the most important dimension of attitude that impacted the integration process, and that skill was the strongest predictor of classroom integration of technology by the teachers[18]. [19]Listed 20 basic technology skills that all educators should now have. These include word-processing skills, spreadsheet skills, database skills, electronic presentation, Web navigation, e-mail management skills, file management and Windows Explorer skills, Farrell & Isaacs (2007) ascertained that some of the new computer literacy skills are electronic gaming, synchronous and asynchronous communication, weblogs, webpages, and multimedia text production. UNESCO (2002) said that training and professional development will need to focus on the ability to know why, when, where, and how ICT tools will contribute to teaching objectives and how to choose among a range of ICT tools. UNESCO also emphasized training in the ability to analyze, use, and evaluate CD-ROMS, websites, video, audio, courseware, and to assist students to find, compare, and analyze information from the Internet and from other sources related to subject areas.

Ease of Use

Perceived ease of use refers to the degree to which an individual believes that a technology is easy to understand and operate or the degree to which using the particular technology would be an easy task, free of additional efforts (Davis, 1989). Technologies that are perceived to be less complex in using have higher possibility of adoption by potential users.[20]found that there was an increasing teacher confidence and motivation which were crucial mediating factors on teacher use of ICT. They also suggested in the report that teacher attitudes, including their confidence and willingness to use ICT, were changing as a result of the network upgrade. As with the provision of laptops, learning to use the network and realizing what it offered, all had a positive impact on both their skill levels and on their willingness to use ICT. Increased use followed increased confidence, which led to increased use.

From previous studies there are a number of factors which have been identified relating to the perceived ease of use of ICT, which in this case is for experienced practicing ICT/IT users. As

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identified by the impact project [21]. Some of these are given in Table1.

Positive factors	Negative factors
regular use and experience of ICT outside the classroom	difficulties in using software/hardware
ownership of a computer	need more technical support
confidence in using ICT	not enough time to use ICT
easy to control the class	is too expensive to use regularly
easy to think of new lesson ideas	insufficient access to the resources
can get help and advice from colleagues	restricts the content of the lessons

Table 1.Positive and negative factors influencing perceived ease of use, Source:(Cox, Christina Preston , & Kate Cox, 1999.)

[22]while investigating factors affecting users perception over adoption of technology found that communication channels played a critical role in determining usefulness perceptions towards IT adoption. Also influential in this regard was the quality of relationship between managers and peers as well as the self-efficacy of the users in deciding the perceived ease of use.

Use behavior

[21]stated that, while teacher use of ICT for report writing, communication, planning and creating resources showed an overall increase, likewise did the integration of ICT into daily teaching and learning increase. The findings clearly indicated an increase in pedagogical and professional use of ICT. This increase was attributed to the presence of strong and reliable network and other ICT resources which were now more readily available than before and robustness of the upgraded systems.

[22]elaborated on users' beliefs and attitudes changing over a period of time and impacting their IT usage .Several other literatures have also confirmed that experience with the use of technology had an influence on intention to use and actual use of information technology [23].

[24]indicated that there are differences in technology integration and technology uses based on the grades where the implementation was taking place in the school. Teachers at the various grade levels differed in how technology was integrated and used in their classrooms. Research indicated that professional development opportunities were important to bring teachers together to discuss and share ideas for integrating technology and also showed that teachers needed to learn to integrate technology within the context of their classroom through practice, reflection, and sharing of teaching practices.

[25]in their study titled, "Exploring the link between teachers' educational belief profiles and different types of computer use in the classroom", analyzed the relationship between teachers' educational beliefs and their typical approach to computer use in the classroom. A cluster analysis attempted in the research showed four distinct

teacher profiles, based on varying levels of traditional and constructivist beliefs teachers held about education. Overall results indicated that teachers with relatively strong constructivist beliefs who also had strong traditional beliefs reported a higher frequency of computer usage. In addition, results pointed at a specific relationship between teachers' belief profiles and the way computers were used in their classroom. The teacher beliefs were significant determinants in explaining why teachers adopted computers in the classroom.

[26]in the study titled, "Attitudes and knowledge level of teachers in ICT use: The case of Turkish teachers", tried to determine teachers' influence in the use of information and communication technologies (ICT) at schools. Variables like years of experience, gender, the duration of computer and internet use, were analyzed to determine the attitude, level of knowledge on and the frequency of ICT use among teachers. The study was conducted with 1540 primary school teachers using the knowledge, use and attitude scales of ICT. The results revealed that the most commonly used and well-known ICT types among teachers were the Internet, e-mail and word processing features, and teachers' attitudes towards computers and the Internet were generally positive. It was also found that their attitudes varied with their years of experience and levels of knowledge.

[27]investigated the acceptance of different types of ICT applications across genders and ethic groups and found that across genders females were found to be less positive in their computer attitudes when compared to the male counterparts. Literature shows that effective use of computers is dependent on the teachers' intentions, personal beliefs and attitudes towards teaching with technology [28];[29]. Teachers' attitudes towards technology greatly influenced their acceptance of the usefulness of technology and its integration in teaching.

Relationship between Teacher Technology Competence and Ease of Use

Teachers need sufficient ICT skills to implement the technology and to have high confident level to use it in a classroom setting. Besides, teachers require insight into the pedagogical role of ICT, in order to use it meaningfully in their instructional process [30]. According to [31] teachers who have gone through ICT courses are more effective in teaching by using technology tools as opposed to those that have no experience in such training. A school in Ireland reported that teachers who did not develop sufficient confidence avoided using ICT. Similar case happened in Canada, some teachers admitted they were reluctant ICT users because they worried they might get embarrassed that the students knew more about the technology than they did [30].There is adequate research evidence that for teachers technology competence could lead lead to its relative ease of use.

Relationship between teacher Technology Competence and use behavior

Results of a previous research [32] show that teachers only focus on a traditional - centered approach when developing ICT skills in the classroom. While teachers are having high confidence and competency in using ICT in classroom their usage pattern does not represent a large variety of ICT tools. This is because they believe that ICT is a tool could help in learning

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process especially to relate with real life practices. The research shows that the relationship between competency and confidence could reflect the balances between training and pedagogically focused approaches in ICT professional development. With this, the school management could make sure that there are sufficient supports for the teachers to integrate ICT in the classroom. Earlier studies have predicted teacher technology competence by their openness to change and technology integration was predicted by teacher openness to change and percentage of technology use[33].

Methodology

This study was conducted in the Indian state of Kerala. A sample of 387 teachers from government high schools and higher secondary schools from across 14 districts in the state were selected using random proportionate sampling method. An exploratory research was carried out in the first phase of the study to identify the premise for technology adoption by teachers in schools in the state. Technology integration and barriers to its adoption served as the initial keywords for the literature review. A questionnaire was formed after the exploratory phase which was used to collect the data for the study. The questionnaire comprised of two parts. The first part of the questionnaire comprised of questions inquiring about the demographic information of the respondents and their general technology usage pattern while the second part of the questionnaire consisted of 5 point Likert type questions where '1' represented the least agreement with the statement and '5' represented the highest agreement. To study teacher technology competence the construct related to teacher technology skill from the TPACK framework[34]. While ease of use and use behavior constructs were adopted from the TAM framework[35]. A descriptive design was adopted in the next stage of the study which falls into a conclusive design. The 14 districts which were divided into three zones and a zone wise proportion of teachers was considered while apportioning the sample to each of the respective three zones. An exploratory factor analysis was followed by confirmatory factor analysis was done to ascertain the variables viz., teacher technology competence, ease of use and use behavior.

Establishing the existence of interactive mediation effect-Sobel, Aroian and Goodman test models

The researcher attempted to study the mediation effect of ease of use of technology impacting the relationship between teacher technology competence and use behavior of technology. A basic causal relationship requires only independent and dependent variable. A third type of variable, the intervening variable, appears in more complex causal relationships. It comes between the independent and dependent variables and shows the link or mechanism between them. Advances in knowledge depend not only on documenting cause and effect relationship but also on specifying the mechanisms that account for the causal relation. In a sense, the intervening variable acts as a dependent variable with respect to independent variable and acts as an independent variable toward the dependent.

Consider a model that proposes that some independent variable (X) is correlated with some

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dependent variable (Y) not because it exerts some direct effect upon the dependent variable, but because it causes changes in an intervening or mediating variable (M), and then the mediating variable causes a changes in the dependent variable. Management scientists tend to refer to the X → M → Y relationship as "mediation." [36] reviewed fourteen different methods that have been proposed for testing models that include intervening variables as Causal Steps. This is the approach that has most directly descended from the work of Judd, Baron, and Kenny and which has most often been employed by psychologists. Using this approach, the criteria for establishing mediation, which is nicely summarized by [37]. One method for testing the mediation effect or intervening effect is to deploy the Sobel test. The Sobel test statistic is computed by dividing the indirect effect coefficient by its standard error. This test statistic is usually evaluated by comparing it to the standard normal distribution. The most commonly employed standard error is [38] first-order approximation, which is computed as $\sqrt{\alpha^2\sigma_\beta^2 + \beta^2\sigma_\alpha^2}$, where α is the zero-order correlation or unstandardized regression coefficient for predicting M from X, σ^2_β is the standard error for that coefficient, β is the standardized or unstandardized partial regression coefficient for predicting Y from M controlling for X, and σ^2_α is the standard error for that coefficient. Details can be found in [39]; [38].

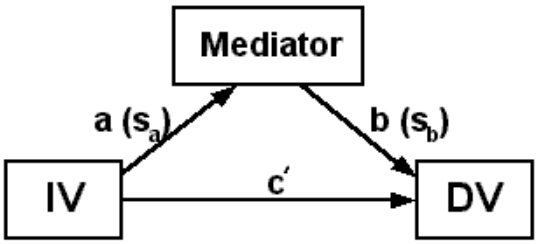

Figure 1.1 Diagram of Mediation effect

In figure 1.1, a, b, and c' are path coefficients. a = raw (unstandardized) regression coefficient for the association between independent variable (IV) and mediator. sa = standard error of a. b = raw coefficient for the association between the mediator and the dependent variable (DV) (when the IV is also a predictor of the DV). sb = standard error of b.

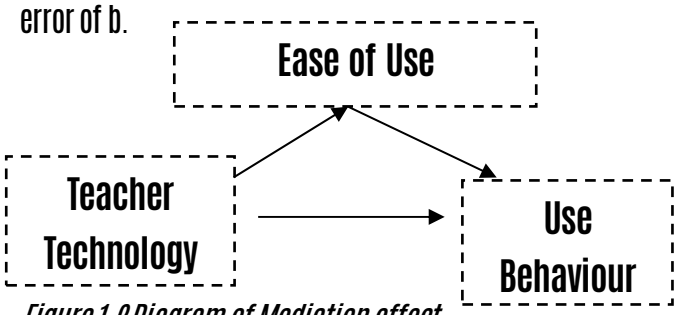

Figure 1.2 Diagram of Mediation effect

In the shadow of above references, the mediation effect of ease of use on the relationship between teacher technology competence and use behavior was proposed and tested. Teacher technology competence and ease of use were considered as the independent variables and use behavior was considered as the dependent variable.The hypothesis framed to test the mediator effect was as follows:

H1: Ease of Use interaction mediates the relationship between Teacher Technology Competence and Use Behaviour

The correlation between the independent variables to that of Use Behaviour was checked. Table 1 shows

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that Use Behaviour is strongly correlated toTeacher Technology Competence (r = 0.521) when compared with Ease of Use Interaction (r = 0.401). To trace the mediation effect, Ease of Use Interaction was taken as the control variable and partial correlation was attempted.

		Teacher Technology Competence	Ease of Use
Use Behaviour	Pearson Correlation	.521**	.401**

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2. Correlations

In order to find out the effect of the mediating variable,Sobel test, Arorian test and Goodman test was performed. A variable may be considered a mediator to the extent to which it carries the influence of a given independent variable to a given dependent. Ease of Use of technology can be considered as the facilitating premise that enhances teacher technology competence which leads to increased use of technology.

Input		Model	Test Statistic	Std. Error	p-Value
A	0.236	Sobel	4.1161	0.0209	P < 0.05
B	0.365	Aroian	4.0862	0.02108	P < 0.05
S_a	0.039	Godman	4.1466	0.02077	P < 0.05
S_b	0.065				

Table 3 Results of study

All the models to prove the mediation effect of Ease of Use interaction were found to be significant (Sobel = 4.623, Aroian = 4.608, Godman = 4.638 p<0.05) which implied that along with teacher technology competence , there should be Ease of Use of technology to enhance Use behaviour of technology among teachers.

Discussion

The study found a positive correlation between teacher technology competence and their technology use as supported by several other research results. One such study refers to the use of technology by teachers in the schools as 'institutionalized use'[40] and has confirmed the positive association. Factors like computer attributes, cultural perception along with computer competence according to [41] were significant predictors of teachers' attitude towards technology. The current study investigated how ICT use behavior of teachers was related to the teacher technology competence and also tested the mediation effect of ease of use between these two variables. The results confirmed a positive and significant relation between teacher competence and technology use behavior among teachers and it was also found that ease of use mediated the relationship between these two variables. While many researchers have investigated the barriers to technology integration in schools among the teaching community, it is imperative to understand whether these teachers really possess required competencies to make technology integration a reality. The results implied that greater teacher technology competence would indicate greater ICT use and hence greater ICT integration, these findings are unlike those studies[42]that have emphasized teachers' self-

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efficacy and perceived usefulness of technology as the solepredictors of use behavior. The study resulted in findings that were congruent with those [43];[44];[45]who have utilized usage and not ability, to indicate teachers' proficiency in technology integration.

It must be noted at this juncture that mere usage of computers does not guarantee technology integration; teachers need to understand how to use technology in their respective disciplines and content areas. Only an in depth understanding of how to embed technology in a specific domain of study would ensure true technology enabled and embedded teaching. Therefore the quality of training programs do matter as suggested by past studies[46].Professional training of teachers has been emphasized as the most important factor that could improve technology integration[47].As hypothesized by the current study Ease of use was also found to have a positive correlation with use of technology which supported the findings of several other studies like[48]. While some other researchers have suggested an indirect but significant relation between ease of use and use of technology[49].It must be noted that teachers may consider a rich set of factors to initially accept technology means in the classroom environment, but for its continued acceptance, ease of use is an essential element[50]. The current study found that ease of use had a strong mediation effect on the relationship between teacher technology competence and use of technology. The results only strengthen the argument that ease of use plays a critical role in ascertaining teachers' decision to use ICTs. As the teachers who are the potential users of these educational ICTs, gain greater experience in using these system tools they perceive them as easy to use andbecome more confident with technology [51]. Therefore role of ease of use of ICTs, in mediating the relationship between teacher technology competence and use behavior can be viewed as crucial for successful technology integration.

Conclusion

This paper presents a set of results that are empirically tested on a sample of 387 high school and higher secondary school teachers from across 14 districts of Kerala a southern state in India. A majority of these respondentshad a teaching experience of more than eleven years and had been using computers for more than five years.The results reveal that technology competence among these teachers was moderately but positively correlated to their actual use of technology and this relationship was found to be mediated by ease of use. This finding suggests that greater investments in teacher training programmes would yield high returns in terms of improved technology competence and in turn result in greater technology usage among them. Improved technology competence in teachers would ensure better technology integration in classrooms which would not only be facilitating technology enabled learning among students but also streamline technology embedded learning.Ease of use of technology has emerged as a powerful mediating variable in strengthening the relationship between teacher technology competence and use behavior signaling that not only its acceptance but the continued usage of technology by teachers can be pledged if they perceive it to be easy to use. The school leadership could ensure greater ease of use

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of technology by providing necessary assistance to teachers by way of technical and operational help through user friendly manuals, hands-on trainings and proficient technicians who could process teacher requests on time and clarify their technology related queries.

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Category: preliminary communication

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The Impact of Colour Psychology on the Cridens Design

Abstract:

The energy of each tone of colour has an emotional and psychological effect on an individual which is used as a tool in informal communication. Therefore, when designing new and renovating existing logotypes, designers do not randomly choose colours, but try to convey a certain message with the aim of being recognised. The fact is that colours on a symbol (logo) affect the visual perception and recognisability of individual products, but also of institutions.

The paper discusses briefly the history of colour psychology, which is followed by an explanation of the way human eye perceives colour and daltonism.

Likewise, we briefly review the application of colour psychology in marketing. After that, the logo of the Cridens Company, part of the Mehun Dental Laboratory, will be presented and explained. Cridens is a company that is engaged in the creation of websites and promotional leaflets, but also comprises a counselling centre for patients of the dental laboratory. The Cridens logo has only two tones of colour, blue and grey, in almost equal proportions. It will be explained in more detail why the company has changed its name and how the newb logo has been designed.

Keywords:

Colour psychology, Design, Logotype, Colour

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Introduction

The scope of work of the company Cridens encompasses professional training and seminars, web and graphic design, patient counselling and business consulting. The former name of the company was Dental Consulting, however, as it was rather long, the decision was taken to rename it to something shorter and more accessible. This company is associated with the Mehun Dental Laboratory in Varaždin. Every logo is connected with colour psychology, i.e. colour is an integral part of each logo or brand and makes it recognizable. It is important to choose colours which are compatible with the business activity as they can attract or alienate final customers. Colours can move final users to feel or do what we want, thus it is important to be familiar with colour psychology when designing a logo of a company. The first part of the paper will present the history of colour psychology, the impact of certain colours on people's moods, and how colours can be experienced differently by different people. After the definition of logo, a particular logo example will be discussed.

Colour psychology

Every civilisation has had its own myths and associations connected to colour. In 1960s anthropologists Berlin and Kay carried out a world-wide research of colour names. Many languages have only two names for colours, which usually denote dark and light, i.e. black and white. [1,2,3] Aristotle, who lived in the 4th century B.C., considered blue and yellow as primary colours, and connected them with basic polarities in human experience, such as Sun-Moon, woman-man, in-out, yin-yang. Furthermore, he connected colours with the four elements: fire, water, earth, air. Aristotle observed the change of light during the day and so developed a linear colour system that ranged from the white light of noon to black, i.e. the darkness of the night. Artists in general accepted Aristotle's principles and continued using them for two thousand years, until they were replaced by the general colour theory which resulted from Newton's discoveries in the 17th and 18th centuries. Hippocrates, the father of medicine and Aristotle's contemporary, was known for recognising the therapeutic impact of colour and using it in medicine. He noticed that white and violet had a different therapeutic impact on patients than violet alone.

In the 15th century, during the Renaissance, a Swiss doctor Theophrastus Phillippus Aureolus Bombastus von Hohenheim, better known as Paracelsus, put a special emphasis on colours in the healing process. He travelled everywhere and tried out treatments that were controversial at that time.

In historic terms, the biggest contribution to the contemporary understanding of colour came from those individuals whose work was a combination of science and mathematics with art, of metaphysics and theology. The teachings of Martin Luther marked the beginning of a huge intellectual shift: the Church was no longer the only provider of education, and many disciplines became independent. This is also the time when art and sciences were ultimately separated. After that, the study of colour was left to scientists, whereas artists were considered to be naturally gifted for colours. [3,4]

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Isaac Newton published his first work on colours in 1672 - at the time, it was highly contested, but 40 years after publishing, it became the basis of optics. Newton passed white light through a triangular prism and noticed that light wavelengths were breaking under different angles, which enabled him to see separate components of colours in the spectrum. Furthermore, Newton created the first colour wheel. [4,5]

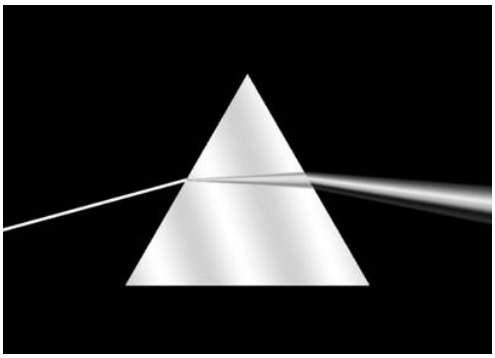

Figure 1: Newton's prism [6]

Johannes Wolfgang von Goethe disagreed with Newton's interpretation of colour. In 1810 he wrote a book "Theory of colours" which was printed in 1840. Although Newton's experiment with prism proved that light is divided into component colours, Goethe argued that if this was right, white light should be divided in all circumstances. When he directed white light onto a screen, he noticed that the centre continued to be white, whereas other colours appeared on the edges. This led him to Aristotle's idea that blue is the first colour visible in the dark, whereas during daytime the first visible colour is yellow. While Newton's theory was substantiated by science, Goethe was more interested in the psychological impact of colour. For Goethe it was important to follow the human reaction to colour stimuli, and this can be viewed as the origin of contemporary colour psychology. [4,5,6]

Understanding of colour flourished in the second half of the 19th century. In 1872 Scottish physicist James Clerk Maxwell developed a triangle-shaped graph as a result of his research into electromagnetic theory of light. He took red, blue and green as the primary colours and claimed that all the other colours in his triangle can be obtained by mixing these three colours in different combinations. This triangle is the basis of the chromaticity diagram devised by the Commission Internationale de l-Eclairage (CIE), which is still used for measurement of light and mapping of human colour perception.

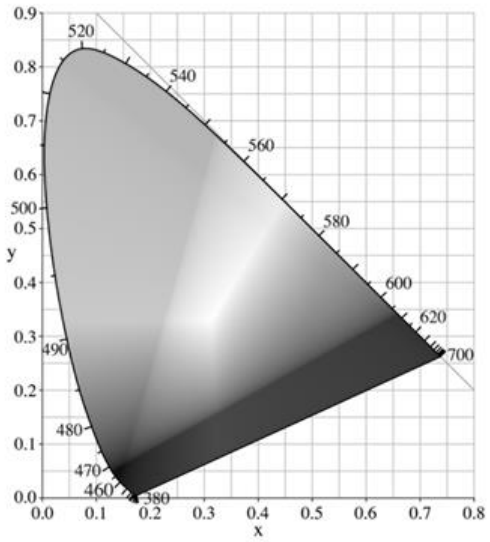

Figure 2: CIE system [3]

In 1878 physiologist Ewald Hering published his work "Outlines of a Theory of the Light Sense" in Vienna. He also studied the three-dimensional field of perception of the eye, but paid special attention to the introspective aspect of colour. He presented the issues of yellow light in the three-colour system. According to Helmholtz, yellow is necessarily a product of mixing green and red, but

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Hering realised this does not correspond to human experience. Hering claimed that mixing of red and green light would never happen, but rather they would eliminate each other. He concluded that there are not only three, but four elementary colour stimuli that code our perception through the so-called opponent processes. [7,8,9]

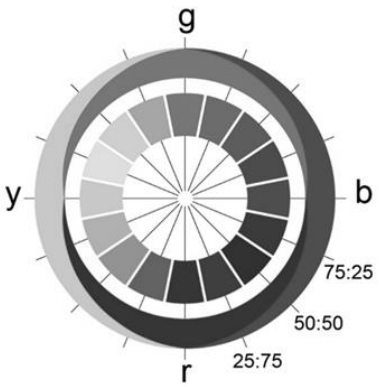

Figure 3: Hering's colour wheel [10]

In the late 20th century Anders Hard, Gunnar Tonquist and Lars Sivik designed a natural colour system (NCS) which is largely based on Hering's theory of colour perception by humans.

There was a growing interest in colour throughout the 20th century, and therapeutic use of colour has become a normal practice for contemporary doctors.

Albert H. Munsell, an art teacher, followed up on Roung's research to develop his own 3D colour sphere based on pigment rather than light. He noticed that pure tones vary in their lightness degree, and some colours are brighter than others. Therefore it was decided that all pure tones shouldn't be on the same horizontal plane and brighter colours should be further away from the axis. [4]

Colour perception

"Colour perception is connected to the capability of the eye to pass the incoming light through cornea, depending on the strength of the light." [1] In human eye there are more than 120 million rods and some 6-7 million cones. Rods are more sensitive than cones, but they are not sensitive to colour, they are only responsible for the perception of lightness of a colour. It is cones that detect colour, i.e. they are responsible for the perception of a tone of colour. There are three types of cones, each of them sensitive to different ranges of the visible spectrum. One type of cones corresponds to long wavelength that absorbs blue light, another type of cones corresponds to medium wavelength that absorbs green light and the third type corresponds to short wavelength that absorbs red light. According to Fairchild, adequate names for cones are L(Long), M(Medium) and S(Short). [5,6,7] The names refer to wavelengths at which colours are perceived by means of cones.

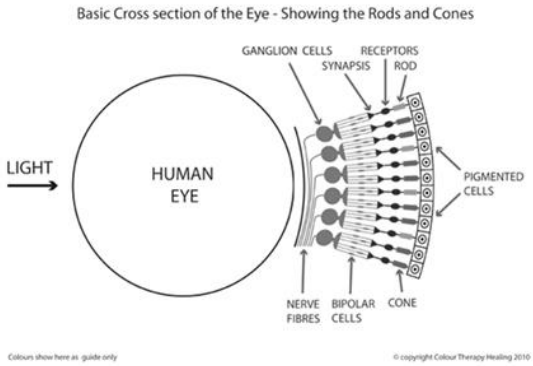

Figure 4: Colour perception by means of rods and cones [10]

When we observe colour with a wavelength between primary colours red, green and blue, combinations of cones are stimulated. As an example, yellow light stimulates the cones sensitive to red and

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green light. The result is that we can perceive light of all colours in the visible spectrum. [8,9,11]

CIE chromaticity diagram

The colour of an object does not depend solely on the object itself, but also on the source of light, the colour of the environment and a person's eyesight. Colour perception is connected with the notion of light. Two basic groups are achromatic and chromatic light.

Achromatic light is perceived as black, white or grey colour, and their only attribute is lightness, i.e. the quantity of light. In terms of physics, the quantity of light corresponds to energy, and is described by means of intensity and luminance. In psychological terms this is described as a sensory intensity and is called brightness. It is advisable to define scalar value as a measure of intensity so that value 0 (zero) corresponds to black light, and value 1 (one) to white light. Between these two values there are different levels of grey.

Chromatic light is a source of much richer and more diverse visual perception. The perception of chromatic light is usually described by three values: hue, saturation and lightness. Hue describes the type of colour, whereas saturation is an indication of the distance of that colour from grey of the same intensity. For example, red is a highly saturated colour, whereas pink is less saturated. Lightness indicates the intensity of light reflected off the object. Sometimes the term brightness is used instead of lightness, especially when speaking of objects which are in themselves sources of light, such as lightbulbs.

The wavelengths used for colour comparison are λ=435.8 nm for the blue spectrum, λ=546.1 nm for the green spectrum and λ=700 nm for the red spectrum. The amounts of stimuli in the three parts of spectrum in the adopted units are called tristimulus values. From the tri-dimensional CE XYZ system of imaginary stimuli one can derive a two-dimensional way of representing certain colour characteristics within the CIE chromaticity diagram. Monochromatic light, i.e. spectral colours within the CIE chromaticity diagram are situated on the curve and on the edges of the diagram which is the extended part in comparison to the triangle X+Y+Z=1. Real colours are situated within the diagram in the triangular area of colours. The isoenergetic source of light (E) is situated in the centre of the triangle X,Y,Z. The lightness axis is vertical on the isoenergetic part of light. Complementary colours are situated so that they lie on the intersection of the straight line passing from the colour through the isoenergetic source of light (E) to the outer outline of the diagram. [3,5,12]

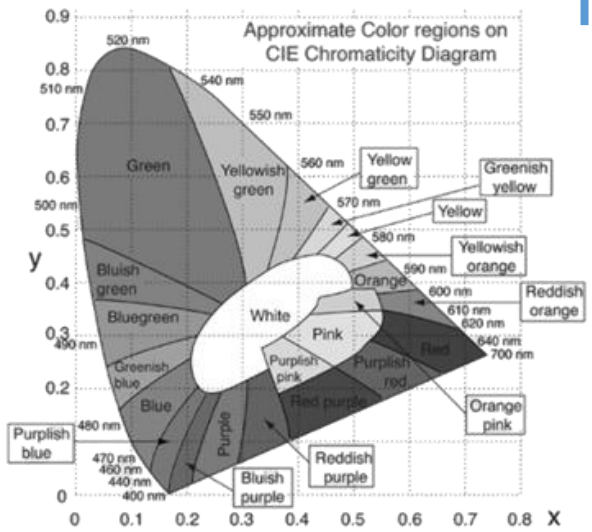

Figure 5: Chromaticity diagram [12]

Daltonism

Colour blindness or daltonism affects about 7% of men and about 0.04% of women. The most frequent form of daltonism is inability to

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differentiate red and green colour, which means that people suffering from this do not see these colours as other people. In a normal eye there are cones specifically for perception of red, green and blue, but people suffering from daltonism lack some of these cones. They are able to see the colour green outside in daylight, but the same thing might seem brown to them when they are inside.

There are several types of hereditary daltonism. A normal eye uses all three types of cones correctly, and these people are called trichromates. When there is daltonism, all cones receive light colours, but one cone perceives light slightly off the centre. Depending on which cone is erroneous, there are three different outcomes. These different aberrations are protanopia, deuteranopia and tritanopia. Protanopia is decreased sensitivity of the eye to the red light, deuteranopia is decreased sensitivity to the green light, and tritanopia is decreased sensitivity to the blue light. Deuteranopia is the most frequent form of daltonism. People with deuteranopia and protanopia have difficulties in identifying the differences between red and green, and brown and orange. It is also difficult to see the difference between blue and violet tones. On the other hand, people who can see the blue spectrum have troubles differentiating between blue and yellow, violet and red, and finally between blue and green. The last one is the rarest condition and affects equally men and women. There is also dichromatic daltonism. Such persons have only two types of cones which can receive colours, and the third type is underdeveloped. Unlike irregular trichromates, their perception of colour does not improve in daylight. Dichromatic vision can be hereditary. People suffering from protanopia are unable to perceive any red light, those suffering from deuteranopia are unable to perceive any green light, and those suffering from tritanopia are unable to perceive any blue light. People who cannot see properly red and green colour live in a world without colours blue and yellow. In both these conditions there will be mixing up of some blue and violet tones, and they will find it hard to differentiate light nuances of most colours. [13] The photographs below illustrate how different types of dichromates see colours.

Figure 6: Normal eyesight [14]

Figure 7: Deuteranopia [14]

Figure 8: Protanopia [14]

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Figure 9: Tritanopia [14]

There are some specific differences between protanopia and deuteranopia. People with protanopia are more likely to confuse black with many nuances of red, dark brown with dark green, dark orange with dark red, some blue nuances with red, violet with darker pink, and green with orange. People with deuteranopia are more likely to confuse red with green, bluish-green with grey and medium pink, light green with yellow, light pink with light grey, red with brown, and light blue with lilac. There is also complete colour blindness or achromatopia, but this condition is very rare. People with monochromatic vision do not see any colours, and their world is painted in black and white and different shades of grey between these extremes. Achromatopia makes it difficult to function properly in everyday life, and such people in normal light conditions need to wear dark glasses. [13,14]

Colours and marketing

Colour is a valuable tool and an integral part of marketing communication, which can send powerful messages to consumers. Different research has shown that 80% of information that people retain is associated with colour.

The significance of colour follows us throughout our lives. Among human faculties or senses sight is the most dominant and developed one, and has the biggest impact on consumer perception. Some studies have shown that 60% of purchasing decisions can be attributed to the choice of an appropriate colour [15]. Colours can grab our attention, be relaxing or irritating. As in other life situations, the first impression is also crucial in marketing.

Given that a particular colour can have positive or negative associations in different cultures, one has to think carefully about the colours used in communication with consumers. When launching a new product, designers try to find the best colour to convey a certain message. Of course, it is not only the colour that is important, but an attractive design in general. Today's market is saturated with all kinds of products, and we are daily flooded with 3500-4000 marketing messages [16,17]. In such a situation it is not easy for any product to stand out. If you give consumers a choice of two equally priced products of the same type, they will inevitably choose the one which is visually more pleasing. On average, consumers need 1/20 to half a second to notice a certain product. Furthermore, studies have shown that purchasing decisions are made within 90 seconds. For this reason, it is important to choose a pleasing colour. In such a brief timespan the brain perceives only attractive colours and disregards the others. As consumers we should be aware whether we are buying a product because of its quality or because we really liked the packaging. [18,19].

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Design of the company Cridens

The logo design of the company Cridens is the redesign of former Dental Consulting. "A logo is a visual presentation of business identity on the market of information. The company or organisation sign and logo are the first thing to be noticed and the most memorable business asset. A professionally designed logo will establish an original business identity and communicate to your customers who you are in the world of information and symbols." [20]

The redesigned logo uses the same colours that were used previously, light blue and grey. Light blue creates a connection with medicine, which is part of the company's activities. Grey is suitable as it is associated with professionalism and creates a sense of trust.

The decision to rename the company and change its logo was taken because Dental Consulting was too long and also too closely connected with dental medicine. People were finding it difficult to remember the name, thus it was decided to shorten it and to create a visually more noticeable logo.

Figure 9: Dental Consulting [20]

Cridens

The logo of the company Cridens now comprises two sides of the brain, and the company name is written in the font Calibri, which was chosen as the company's official font.

Each side of the brain was first drawn separately in Adobe Illustrator. Taking into consideration that the company engages in different activities, the two sides of the brain are in different colours. On the one hand, the company offers logical solutions such as seminars and training courses, and on the other, it provides artistic solutions, such as web design and design in general.

The left side of the brain is grey with increased opacity, that is, transparency, because the company name is to be written over it. Opacity was increased in Adobe Photoshop in order to get a .png image.

Figure 10: Brain_1 [20]

The side of the brain on the right is light blue, or even of cyan hue. Transparency was again created in Adobe Photoshop and the image was saved as a .png file.

Figure 11: Brain_2 [20]

In the logo itself, the right side was moved slightly lower, to make the difference between the halves more noticeable. When the image was finalized and saved as a .png file, it was processed in Adobe Illustrator to increase its opacity, i.e. to make it

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more transparent. Finally, from Adobe Illustrator the logo can be saved as a .pdf file which is then print-ready.

Figure 12: Logo [20]

The logo was also saved as a .png file so that it can be used in electronic documents. The logo shown in Figure 12 will be on the official stamp as well as printed on T-shirts, whereas the one shown in Figure 13, with added address and e-mail, will be used in official documents and invoices.

Figure 13: Logo for official documents [20]

Conclusion

The study of colours goes as far back as ancient Greece. Aristotle stated that blue and yellow were primary colours. As for human eye physiology, rods are more sensitive than cones, but they are not sensitive to colour, but rather to the lightness of a colour. Cones are the ones that detect colour, i.e. different tones of colour. If a person has an anomaly on one of the cones, or the cones are underdeveloped, this results in daltonism or colour blindness. More precisely, people with this condition cannot see the whole colour spectrum. Some colours seem too pale and they cannot identify the differences between them. Although possible, complete colour blindness is very rare. It occurs when cones failed to develop; the consequence is that such a person sees everything in black, white, and the grey nuances in between.

Most people can see colours, but they have different reactions to them. Thus, the colour red can stimulate aggression, but it is also a symbol of love. Blue creates tranquillity, but it can also be depressing.

Studies have shown that colours can influence people in both physical and psychological sense. This is why they are widely used in marketing. The colour of a logo is chosen to convey a desired message and to make it memorable. The logos of famous companies, such as Coca-Cola, are recognizable thanks to colour and particular design. This was the aim of redesigning the logo of Cridens in blue and grey tones - to make it memorable and create a feeling of safety and trust.

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Category: review paper

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Net neutrality from legislative, technical and marketing perspective

Abstract:

Net neutrality is the principle in which Internet service providers (ISPs) treat all data traffic equally, and none of them slows down or accelerates data transfer speeds depending on who the current user is, what kind of content is being transferred, from which web site it comes, or from which platform, application or communication model. So far this kind of ISPs behavior has been a standard, but by changing certain rules, new moments which can significantly change the way the Internet is use are coming.

Also, the way that we do business over Internet might change as well. The elimination of net neutrality can be seen from several perspectives, and we will pay attention to net neutrality from legislative, technical and marketing one.

Keywords:

net neutrality, bandwidth trottling, quality of service

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Legislative perception

In September 2005 U.S.'s Federal Communications Commission released a Policy Statement establishing four principles in order to ensure that broadband networks are widely deployed, open, affordable, and accessible to all consumers. Those principles entitle consumers to:

1. access the lawful Internet content of their choice,
2. run applications and use services of their choice, subject to the needs of law enforcement,
3. connect their choice of legal devices that do not harm the network,
4. competition among network providers, application and service providers, and content providers.

They set the ground for establishing net neutrality as Federal Communications Commission released Open Internet Report and Order, in December 2010, to preserve the Internet as an open platform for innovation, investment, job creation, economic growth, competition, and free expression. They adopted three basic rules that are grounded in broadly accepted Internet norms:

- Transparency. Fixed and mobile broadband providers must disclose the network management practices, performance characteristics, and terms and conditions of their broadband services.
- No blocking. Fixed broadband providers may not block lawful content, applications, services, or non-harmful devices; mobile broadband providers may not block lawful websites, or block applications that compete with their voice or video telephony services.
- No unreasonable discrimination. Fixed broadband providers may not unreasonably discriminate in transmitting lawful network traffic.

These rules were supposed to empower and protect consumers and innovators while helping ensure that the Internet continues to flourish, with robust private investment and rapid innovation at both the core and the edge of the network.

„In January 2014, the D.C. Circuit struck down the antiblocking and antidiscrimination rules in Verizon v. FCC. The court held that the FCC had the statutory authority to enact the rules, but that the agency had unreasonably interpreted sections of the Communications Act and had regulated broadband providers as "common carriers" despite declining to classify them as such, in violation of that statute." [1] . That's when the FCC started drafting new Open Internet rules, and in March 2015 released Open Internet Report and Order on Remand, Declatory Ruling, and Order whose aim was to enact strong, sustainable rules grounded in multiple sources of legal authority to protect the Open Internet and ensure that Americans reap the economic, social, and civic benefits of an Open Internet today and into the future [2]. This new Order reclassified broadband Internet access service as common carriers under Title II opposed to former classification as information services, governed by Title I of the Communications Act.

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The chairman of the FCC Ajit Pai in his speech given on April 26, 2017 said that they are proposing to return the classification of broadband service from a Title II telecommunications service to a Title I information service. Also to eliminate the so-called Internet conduct standard that gives the FCC a roving mandate to micromanage the Internet, and that they are seeking comment on how they should approach the so-called bright-line rules adopted in 2015 [3].

The FCC issued a Notice of Proposed Rulemaking (NPRM) on May 14 2017, and on December 14 2017, voted in favor of repealing these policies. American Senate passed a resolution to overturn that decision, but the resolution still needs to be voted on in U.S. House of representatives and confirmed by the president of the United States. The repeal of the FCC's rules took effect on June 11 2018 but the legal battle against it still remains.

European Union has adopted the Regulation 2015/2120 of the European Parliament and of the Council laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union on November 25, 2015. It establishes common rules to safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services and related end-users' rights, specifies transparency measures for ensuring open internet access, supervision and enforcement.

Using a Regulation as the form of EU law on net neutrality is enabling that the precise wording of the law is identical in all EU/EEA countries. „ISPs are prohibited from blocking or slowing down of Internet traffic, except where necessary. The exceptions are limited to: traffic management to comply with a legal order, to ensure network integrity and security, and to manage congestion, provided that equivalent categories of traffic are treated equally. The provisions also enshrine in EU law a user's right to be "free to access and distribute information and content, run applications and use services of their choice". Specific provisions ensure that national authorities can enforce this new right."

The Internet has greatly contributed to growth and innovation in Europe countries' economies. Information can flow freely, and new content and applications can easily be developed because of the low barriers to entry on the open platform of the Internet. The net neutrality rules in Europe are ensuring that the internet ecosystem can continue to thrive as an engine of innovation and freedom of expression. [4]

Internet neutrality and digital marketing

The end of Open Internet era - or Internet neutrality repeal, which recently came into force in the United States, can have major consequences on business, market and marketing strategies of new and small companies. Some of the authors writing about this new regulation fear that Internet providers and big corporations will use the legislature against small companies and startups.

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The end of Internet neutrality could cause drastic decrease in the number of their users as well as very bad user experience. For less known Internet websites and new projects, this could mean user and revenue loss, as well as complete project shutdown. It could also have a huge effect on already well-established companies and platforms for content distribution and enable Internet Service Providers (ISPs) the possibility to limit data broadband speed when visiting certain services or different platforms. In the end, this could mean two things: 1. full speed paid by service providers, and 2. full speed paid by end user.

For existing companies, this additional cost would lower their competitiveness and make things more difficult for emerging companies. In addition, the regulation could allow ISPs to favor certain platforms and content and in extreme cases, prevent the emergence of new companies or their equal position in the market.

It should also be noted that ISP companies such as AT&T, Verizon and Comcast already own several video contents providing platforms, raising fears they will give priority to their own services.
"This might mean fewer startups get a shot at becoming the next Facebook, Netflix or YouTube. Ultimately, it could lead to your Internet experience looking more like cable TV, where all the content is curated by your provider. " [5]

As the new rules on net neutrality will be used by corporations sourcing Internet services, it may best illustrate events not so long ago when Internet neutrality abuses in the United States were prohibited and punishable. In 2012, for example, the second-largest American telecommunications company AT&T was caught in restricting Apple's FaceTime traffic, which users could use only if they activated the more expensive AT&T Internet access package. "AT&T was limiting the iPhone's FaceTime video-chat service on its cellular networks to users with new, shared data plans, which are generally more expensive. " [6].

FaceTime is a video telephony application that allows Apple users to view and chat using the front video camera on iOS mobile devices or any Apple Mac computer with the FaceTime video camera. One year later, the Advisory Committee on Open Internet, operating within the framework of the independent US regulatory agency Federal Communications Commission (FCC), presented the aforementioned case in its annual report as one of the examples of restricting open access to the Internet.

The Committee presented several opinions and stated "that blocking applications runs the risk of discouraging innovation, but that carriers also need effective ways to manage the limited resources in cellular networks. This led to three main opinions about AT&T's decision to restrict customer access to the FaceTime application over its cellular network, presented from the perspectives of different parts of the mobile broadband ecosystem - application developers, carriers, and network equipment vendors. These opinions convey the conclusions of advocates for these perspectives among the working-group members, but do not attempt to fully represent each community." [7]

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Apart from the end of Internet neutrality, it may also affect the development of new services and products (innovation) in the marketing industry, which already expressed their fears that such development could negatively affect digital advertising. Marketing professionals predict that digital ads could increase marketing costs that could be imposed on telecommunication companies. It remains unclear what can happen if telecommunication companies choose to use the new legislative framework in such a way to restrict access speeds to certain Internet destinations or the speed and turnover of adservers and companies that distribute display ads through advertising networks.

Just one decision could restrict access to content provided by small and startup companies and/or make it difficult to find, forcing them to work under completely new circumstances. Publishers and advertisers warn that consumers should and must access their content without any unfair difficulties. Concerns have also been expressed that this new regulation will enable telecommunication companies which own content providing services to give their users free data streaming of otherwise payable service.

As already said, this could have a huge effect on some of the well-established video content providing companies and/or completely prevent the emergence of new similar services. In such circumstances, publishers who cannot afford such terms unfairly lose market battle.

Marketing professionals will also have additional difficulties in their daily activities as well as in evaluation of marketing campaigns. For them, this will mean that they will be forced to completely change existing business models. As has already been said, ISPs may slow down or completely block display of marketing ads, thus making measuring and calculation of cost-effectiveness (ROI) extremely complex. This can result in reduced transparency and further destabilize client confidence in selected marketing strategy as well as general effectiveness of marketing campaigns on the Internet.

In this regard, authors mention that search engine optimization strategies (SEO) can become less important, and that SEO experts will be completely redundant in some cases. As they write, efforts of SEO experts to optimize and improve the search engine positioning can be minimized, and ultimately irrelevant if the first places on the search engines are to display only fast-line or paid content. Additionally, efforts to increase organic traffic, which is extremely important to advertisers and agencies, becomes extremely difficult and much more complex.

Marketing industry experts who deal with data analytics may also have difficulties, as they will have to find ways to compile and interpret data from different companies and at different access speeds. As stated by Comcowich [8], "Web analytics will become more complicated. Comparing web traffic of different players with varying Internet speeds will be more challenging. That may prompt marketers to approach web metrics differently."

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These are just some of the possibilities that could arise from Internet neutrality repeal. As a conclusion, it may be argued that marketers and other professionals will have to overcome many new technical and unfair difficulties to remain competitive and survive in the market in which all odds are on the side of large and powerful corporations.

Technical background

The development of the TCP / IP protocol, available since the 1970s, has created the prerequisites for transferring large amounts of data from one physical location to another. This protocol represents the basis of all current network connectivity and although it is a very old technology (in terms of modern technology development) it contains robust mechanisms for assuring stable Internet connection, even at high data transfer speeds. Until today, TCP/IP has two main versions: old IPv4 that is used today, and IPv6. IPv6 will replace old protocol because of numerus reasons, but for purpose of this paper we will mention Network Address Translation service (NAT) and much bigger IP address pool. One of the major goals for accepting IPv6 protocol, particularly for real time data transfer, is all new support for quality of service. IP packets that are sent over network in new version of protocol have flow label field that can contain information about packet priority [9]. This contributes to robustness and failover of network, needed for modern applications, and with accent to high availability mobile networks.

Connection of different devices into a single system is a technological challenge that scientists and experts in various IT and technology fields have been dealing with for decades. The result of their work is visible in the created development environments for application and device programming, communication protocols, and ways for physical communication between people, computers, and machines. Over the last few years, direct communication between Machine to Machine (M2M) has been expressed and it is assumed that by the end of 2020, there will be 25 to 50 billion network devices in some form connected to the network [10].

As a result, approximately 40% of the total Internet traffic is expected to generate digital communication between the two [11], without any human interaction. Such predictions are certainly a remarkable innovation potential, and it is expected to explore several new opportunities arising from the explosion of network connectivity. This undoubtedly represents good prerequisites for the development of many business ideas.

Data transfer issues arise at the moment when Internet services that require a secure and stable high-speed connection have appeared. For example, the classic web that is being used today is not so demanding toward a computer network and Internet service providers (ISPs). But, real-time voice or video applications like Skype, Apple Facetime, Google Hangouts, Viber and so on, that are dependent on low latency and higher-than-usual connection speed can create problems for their users. Even applications that are based on video streaming in one way, such as Netflix, can

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suffer from low speed network. If multiple network users actively use the Internet, e.g. downloading files from the web, there is a great possibility that VoIP and other demanding applications will not work properly. Because of this, network administrators and ISPs use certain technologies for bandwidth shaping, and the collective name for them is QoS (Quality of Service). QoS can detect types of data packets that are transported via communication network and prioritize applications that are important. Quality of Service can be used by network administrators to create network environment fast and prone to many simultaneous download sessions. As written in IBM Knowledge center [12], network administrator can:

- Regulate the amount of traffic of a certain type injected into the network;
- Mark selected packets according to some policy so that subsequent routers can deliver the indicated service;
- Support services such as the virtual leased line service with proper QoS support along the route; and
- Participate in the resource reservation requests from receivers and announce sender sessions available for resource reservation requests.

QoS support provides functionality as:

- Differentiated services that are transferred thru network
- Traffic policing
- In-profile and out-of-profile packet marking
- Traffic shaping
- Metering
- Integrated services for client and server applications as defined in RFC 1633
- RSVP signaling (RFC 2205)
- Guaranteed service (RFC 2212)
- Controlled-Load service (RFC 2211)
- Policy-based networking

So, QoS system is already fully developed and in use not only by local network administrators, but by ISPs as well. QoS enabled equipment used today provides resources to slow down Internet connection and helps to create different Internet connection payment plans so every user can choose data plan that suits him best. Of course, more expensive data plan provides better connections speeds and more bandwidth, redundant data connections or high-speed streaming for video dependent applications.

In many cases, it is useful to use QoS as it allows setting priorities in data transfer. For example, in an enterprise where there are more simultaneous Internet users, it is desirable that applications such as emails have higher priority than viewing Youtube video content. Email download is a network communication that lasts only a few seconds, while video streaming is an application that, if its priority is not set to a lower level, can disable email reception until video streaming is over. Of course, todays this is not the case because of various mechanisms for QoS, but also because of higher speeds of network connectivity.

Intentional slowdown in Internet access may therefore prevent users from using certain

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services. If the sensors, actuators and other IoT devices are connected to the Internet, it is impossible to create the prerequisites for a new generation of services that result from comprehensive and powerful network connectivity.

Conclusion

Enforcing net neutrality is crucial to maintain balanced and equal possibilities for both personal and business use. From economic point of view, if ISPs have granted the right to enforce their own bandwidth throttling schemes, it would lead to bad environment for small startups and other businesses that enter arena with bigger players like Netflix, Google or Amazon. This would eventually lead to monopolistic behavior that can stop fair business development.

Current network technology is already developed enough so ISPs don't need to invest resources in enabling bandwidth throttling. Of course, if legislative allow. If that happens, todays web sites will not suffer much from that decision. It is because not much data is moved from client to server, and vice versa. So, there is nothing much to slow down. But, modern web sites that are based on video and audio streaming, high bandwidth demanding applications, and applications that requires very low latency network connections can have numerous problems.

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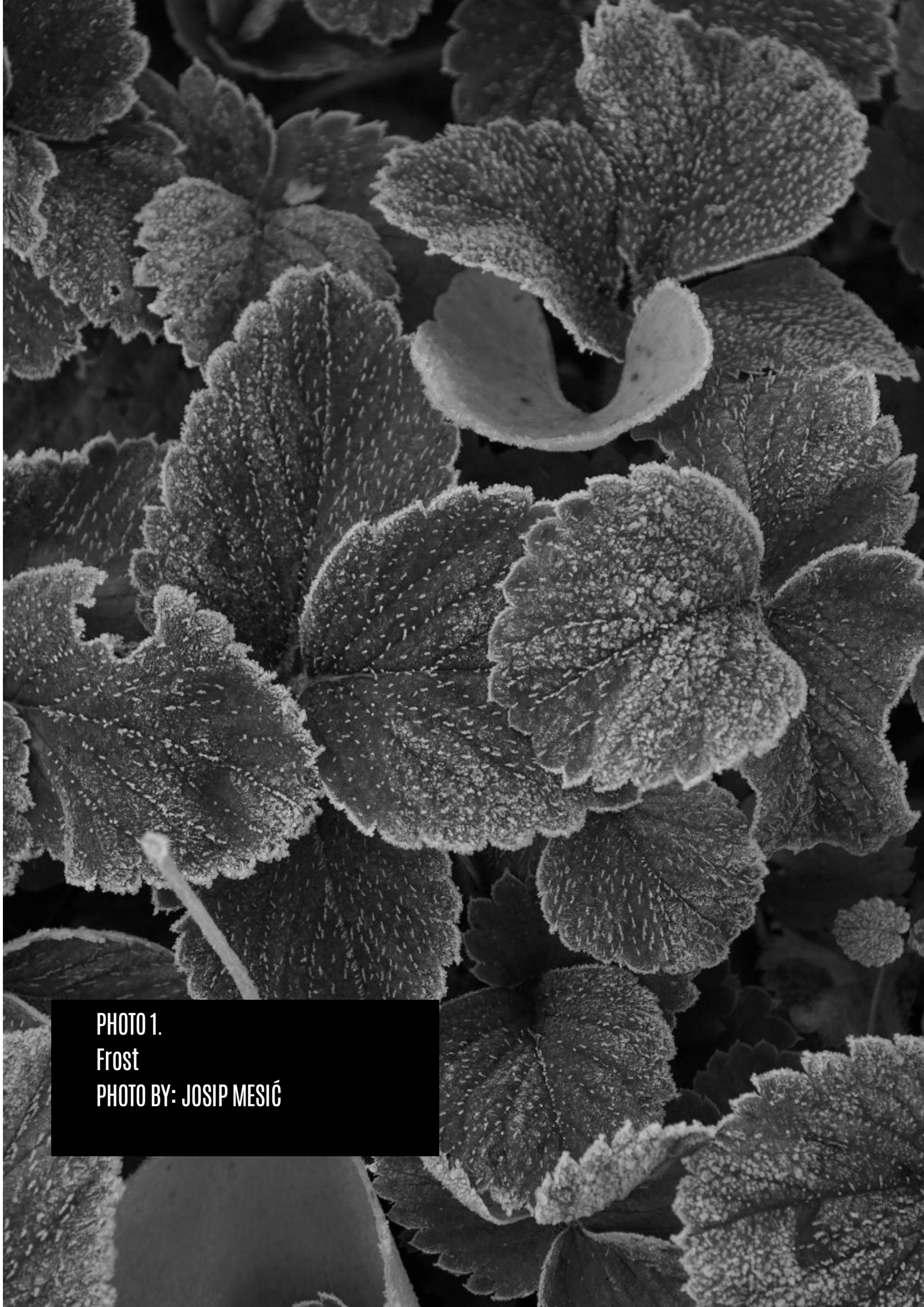

PHOTO 1.
Frost
PHOTO BY: JOSIP MESIĆ

Category: review paper

Markovac, Mihaela [1]

Influence of Cross-Cultural Management on the Development of Tourism: Example of Požega-Slavonia County

Abstract:

This paper analyses the influence of cross-cultural management on the development of tourism, with the emphasis on Požega-Slavonia County. Management is an integral part of modern business and governance of resources. However, global market requires distinctiveness, something that differentiates a product or service from the competition. That is why cross-cultural management is gaining significance in modern business, since it is putting culture and tradition in the function of business and realising its potential primarily in tourism. By acknowledging cultural differences, cross-cultural management adapts those same differences to the needs of business. Here it is important to know how to present and direct the richness of culture and tradition and make it sustainable. The example of Požega-Slavonia County (which is at the very bottom in Croatia in terms of development) points to the insufficient utilisation of possibilities that the cross-cultural management offers. The causes of this underdevelopment, despite a rich culture and tradition of Požega-Slavonia County, are truly numerous. But, with a well-thought-out strategy of cross-cultural management, the tourism in Požega-Slavonia County should become the key aspect in recognising this area as a place of oeno-gastro experience.

Keywords:

cross-cultural management, culture, tradition, tourism

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VALLIS AUREA

Introduction

Management is a core component of modern business and governance. It helps to make people work together in achieving common objectives and developing common values. Good management enables participation in the market competition for all interested parties, i.e. to those who want to improve their business and to stand out in the market, thus distinguishing themselves from the competition. It can be rightly said that in the modern world there is no success in the reaching the potential or achieving objectives without management. If management is applied according to the principle of cultural differences, we arrive to the notion of cross-cultural management. By acknowledging cultural differences, cross-cultural management adapts those same differences to the needs of business.

Cultural differences are mostly influenced by the culture and tradition of a population or a region within a country. Due to its historic heritage, Croatia is especially characterised by richness of cultural diversities, which can be presented in different ways through culture and tradition. If adapted to modern needs, culture and tradition can be shaped through management and serve in the interest of business, for example in tourism. But, simply having a rich culture and tradition is not enough; it is necessary to know how to present them and apply them to the modern life style. A good example of that is Požega-Slavonia County which, despite a rich culture and tradition that are reflected in its own multiculturalism, does not achieve good tourist results. On the contrary, in terms of tourist visits, this county is at the very bottom compared with other Croatian counties and represents just 0.1% of total tourist visits at the state level.

This paper deals with cross-cultural management through the segment of culture and tradition. The emphasis is on the possibilities that this type of management has in tourism. The paper analyses the possibilities of usage of culture and tradition in Požega-Slavonia County. By considering the aforementioned statistical data on tourist visits in this county, the starting thesis refers to the insufficient quality of management of resources in Požega-Slavonia County. Therefore, we can ask the question why is tourist attendance in this county almost negligible? It is expected that the management of this county has certain shortcomings, primarily in determining common long-term objectives. The research methodology in this paper encompasses the analysis of available literature, secondary sources and open source documents.

Cross-cultural approach to management: previous research

Management and knowledge are closely connected, or even mutually conditioned, because management and knowledge have the social function and make the world and life more efficient only when they interact with each other. The opinion that management refers only and exclusively to economic processes is a fallacy. On the contrary, more or less every individual or an organisation, association and company meets some type of management in its business operations. An action plan or the organisation of a certain business process often has a key role in achieving a set objective. Also, it is wrong to think

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that a business objective refers only to profit, because both the profit and non-profit organisations must apply management rules in their activities if they want to be successful.

How can we then define management? Simply put: "Management is a scientific discipline which is researching the most rational ways of governing a company or state institution, or the practice and process of governing a company, organisation etc." [1] This indicates that management can be studied as a scientific discipline, but that it also has its social function, one that is primarily reflected in practice. Peter Drucker emphasises that social function when he says that management is a liberal skill: "Liberal because it deals with basics of knowledge, self-knowledge, wisdom and leadership; skill because it also deals with practice and application." [6] But, management strongly affects people, their lifestyle, values and development of community through its social function, so we can conclude that management has spread over a broad social structure.

But, to unequivocally define management is neither simple nor easy. What are the causes of difficulties of defining management? Vinko Belak points that: "Management is not a static term. It is comprised of activities of a manager and the employees, who are oriented towards completing the objectives of an organisation, which they must achieve by working together in changeable environments and conditions of strong competition." [2] Pere Sikavica and Fikreta Bahtijarević-Šiber are dealing with semantical issues in defining management, because different terms related to management are given the same content and vice versa. According to them: "The term management, from case to case, is used in different meanings, firstly as governance, secondly as leadership (in most cases), and thirdly as organisation." [10] They point out that semantical problem of defining management is reflected in the absence of an adequate translation of the term management into Croatian language. In Croatian language it mostly refers to governance.

Management does not affect only the sphere of private entrepreneurship, but it should also have a key role in an economic situation of a country, which would also imply a political will to improve it. Finding the most adequate way of steering the knowledge towards realisation of a certain objective should be a part of initial preparation and design of the strategy for economic development. Therefore, we come to the term cross-cultural management, which combines management and political will, with the emphasis on cultural differences which very much influence the business success in a country. Cross-cultural management implies a special kind of management, one which applies comparative research of different cultures and their influence on management and business model and business communication with the aim of business development. This approach is necessary in a process of globalisation where emphasising the differences or specificities can help the establishment on the product and service market. It is precisely because of the globalisation and the development of information and communication technology that the competition is stronger than ever before. That is the reason why understanding the cultural differences leads to realisation of a business or political objective.

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The founder of cross-cultural management is Geert Hofstede [13] who used a sample of fifty countries to develop a method which can be used to compare values and behaviours of certain populations, thus helping to avoid cultural shocks when doing business anywhere in the world. For evaluation of cultural values of a certain state, Hofstede lists the following factors: power distance index, i.e. what is an individual's attitude towards authority and power and how strong is a person's individualism relative to collective; uncertainty avoidance index, i.e. how much are people ready to accept new thoughts and ideas; relationship between sexes (masculinity and femininity); short-term orientations versus long-term orientations (a country's strategic development plan); and indulgence versus restraint, i.e. population's tendency to hedonism. By accepting cultural differences, business communication also becomes cross-cultural, taking ambiguities and unpleasantness in a code of business conduct in a country to a minimum. It appears that the world is a global village only conditionally speaking, because each nation develops its sense of self-respect and dignity and strengthens its national consciousness through the preservation of its cultural specificities. Cross-cultural approach to business is necessary in: international negotiations, international management and marketing, political activities and surely in tourism.

Culture and tradition in cross-cultural management

Culture and tradition encompass a set of values, material and non-material heritage which differentiate one nation from another through their specificities. If well designed and managed in terms of marketing, and adapted to the needs of a modern man, culture and tradition can become an important factor in a nation's tourist offer. It is especially the cultural differences, which are partly a reflection of tradition, that enter the sphere of cross-cultural management.

Culture and tradition are inseparable parts of heritage. Ivan Cifrić defines heritage in the following way: "Heritage is understood as naturally created and man-made material (settlements, buildings, tools) and non-material goods (customs, skills, knowledges) in which social (inheritance, relations in community and marriage, institutions) and spiritual heritage (values, moral, norms) can be differentiated as collective acquis. Heritage belongs to us and we to it. It is a relationship towards past, present and future, and it includes our right to use, obligation to preserve and duty to create for future generations." [4] Although the mentioning of heritage mostly makes us think about positive cultural acquis, heritage can also be negative, such as bad norms of conduct. But, the important thing with heritage is surely the connection between heritage and tradition. Tradition preserves cultural heritage, but it also changes it to a certain extent. We can say that heritage is renewable because with each new social structure, the relationship towards heritage also changes. According to Cifrić: "Tradition reinforces and preserves cultural heritage, especially the non-material culture, but it also operates selectively through time, so that some products of culture fall into oblivion." [4] Through its actuality, heritage regains its importance as a witness of time and strengthens national recognisability.

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Well-thought-out and marketed heritage is most commonly recognised through tourist offer or branding of a place, region or state. Recognisable cultural heritage often offers an advantage compared to competition. Vesna Vrtiprah states that: "Desire to discover an authentic heritage is almost always on the list of travel motives. Cultural and ecological content in tourist offers is gaining more and more significance in the modern world, and regional differences are becoming ever more important." [12] This is caused by the desire for an authentic experience, which a tourist can only enjoy in a natural environment and in interaction with an authentic cultural heritage. Vrtiprah emphasises that emotions are very important in selection of tourist destination. "Cultural resources must be a source of emotions for tourists, they must give them a specific experience, enable them to feel the history of a landmark and to enjoy their visit." [12] When choosing their holiday destinations, tourists are increasingly deciding for active vacations which combine different contents that largely include cultural heritage of a certain destination.

Culture and tradition usually invoke the spirit of the past, but, a well-thought-out marketing for heritage makes it contemporary, thus putting it ahead of competition. The imperative of tourist offer is no longer only to be the first, but also to be unique. Daniela Angelina Jelinčić says about that: "Tourism as a modern phenomenon appears to be in contradiction with heritage as an expression of history and tradition of a nation and locality. Depicting past in present, however, can create the perfect foundation for creation of cultural-tourist products, completed with contemporary world trends which are if favour of cultural tourism." [8]

It is precisely tourism that, according to Jelinčić, influences the maintenance and preservation of cultural heritage. "Forgotten knowledges about one's roots and pride of one's heritage can often thank the tourism for their renewed usage and preservation. That way, tourism gets an extremely important role in preservation of heritage." [8] However, even though there are multiple positive sides for local population, such as: expected increase in income and improvement in standard of living, feeling of pride of cultural heritage, strengthening of the identity, the negative sides of tourism should also not be forgotten. Those are: frustration of local population due to the fact that their daily lives are subordinated to tourism (for example in Venice and Dubrovnik) and creation of distorted values, such as high prices which are also affecting local population. We can ask the question how much does a place's subordination to tourism affect its cultural heritage? Jelinčić is of the opinion that it is important to keep in mind sustainable development of tourism. What does that term entail? "Sustainable development of cultural tourism should not involve what a tourist might want to see, but what the local community wants to show about itself." [8]

Therefore, it is indisputable that cultural heritage influences tourism and that tourism influences cultural heritage. But what about the authenticity of tourist offer? There is an impression that the authenticity is often pretended and that tradition is invented for the purpose of tourism. This is precisely where Jelinčić sees the adaptation to the needs of modern tourists. "In tourism, remains of the past serve only as raw material that should be mined and used in accordance with contemporary attitudes. Time is changing, as well as attitudes

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and values. For a modern tourist, an accuracy of presentation is often not important, and precisely due to the changes that the time brings, the presentation sometimes seems uninteresting. Therefore, it is about the ability of interpretation adapted to modern times." [8]

Perspective of cross-cultural management in tourism: the example of Požega-Slavonia County

Earlier it was mentioned that cross-cultural management is an integral part of management of tourism precisely because it is with a good marketing strategy with an emphasis on cultural differences that it is possible to be distinctive compared to competition. However, when setting up the strategy for tourism development, besides researching the existing conditions, supply and demand and conditions on the tourist market, it is also necessary to take into consideration the everyday political events, which are sometimes crucial in choosing tourist destination. For example, Egypt and Tunis are less and less attractive tourist destinations because of complicated political situations in those countries, while Turkey, which until recently was a tourist giant, is surely suffering decrease in revenue due to the terrorist attacks. Of course, when designing a strategy for development of tourism of a country or a region, the involvement of government is necessary for the purpose of achieving the set tourist objectives and, in the end, generating the revenue.

Speaking about the perspective of development of Croatian tourism, the key document for insight into the existing conditions in Croatian tourism and its future development is a document released by the Government of Republic of Croatia entitled Tourism Development Strategy of the Republic of Croatia until 2020. [11] According to this document, tourism in Croatia is made up of natural resources and rich cultural and historic heritage. However, the most important problem is immediately noticed, and that is the insufficient utilisation of these same resources: "Despite an extraordinary wealth and abundance of those natural, historic and cultural attractions, only a small number of them is included in the overall offer." [11] This problem is complex and includes numerous factors such as: lack of tourist attractions and basing the offer on the most common tourist contents, which are the sea and the Sun (85% of Croatian tourist offer); poor transport infrastructure (primarily rail transport); lack of content and opportunities for sport and recreation; inadequate price and supply ratio; poor management marketing and direction of tourist offer; lack of web marketing; poor and complicated legal frameworks that are hindering the development of tourism; disparity in the representation of coastal and continental tourism (89:11%). [11] From that it follows that the most important features of Croatian tourism are: "Insufficient differentiation of products and services; lack of innovative and high quality guest accommodation; growth based primarily on the expansion of family accommodation in households, lack of quality hotel offers with an insufficient investment activity, insufficient connectivity via air or sea; static system of national marketing; low number of globally branded destinations; inadequate destination tourist infrastructure; and inherited orientation of the local population towards seasonal business."

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[11] In order to eliminate or at least reduce these deficiencies, the Strategy sets out the strategic objectives and tasks of Croatian tourism to be achieved by 2020. These are: improvement of the infrastructure and quality of accommodation; new jobs; tourism investments amounting to EUR 7 billion and increase in spending to EUR 14.3 billion. Tourism Development Strategy of the Republic of Croatia until 2020 is the core document detailing development of tourism in our country, and every strategy for tourism development at a local level is in line with it, including the strategy for tourism development in Požega-Slavonia County.

Evaluation of existing conditions in tourist offer in Požega-Slavonia County

According to the data provided by the Ministry of Tourism, the number of tourists visiting Požega-Slavonia County is stagnating, and is not showing signs of recovery or improvement. As can be seen in the following table, the share of the number of tourist arrivals in Požega-Slavonia County compared to the total number of tourist arrivals in the Republic of Croatia is only 0.1%, and the development of Požega-Slavonia County tourism is at the very bottom compared to the other counties.

Year	Number of tourists (in 000)	Structure in %
2011.	10	0.1 %
2012.	9	0.1 %
2013.	10	0.1 %
2014.	10	0.1 %
2015.	10.30	0.1 %

Table 1. Source: The Ministry of Tourism of the Republic of Croatia [14]

For comparison, we can examine the number of tourists in all of the counties in eastern Slavonia. But, as we can see from the following table, Požega-Slavonia County is significantly lagging behind the other Slavonian counties as well.

County	2013	2014
Osijek-Baranja	64.294	64.539
Vukovar-Srijem	46.039	50.690
Brod-Posavina	18.325	17.802
Požega-Slavonia County	10.326	11.032
Virovitica-Podravina	7.965	8.992

Table 2. Source: Tourist Board of the Požega-Slavonia County [16]

It follows that the tourist situation in Požega-Slavonia County is extremely negative despite its wealth of natural resources and cultural heritage. The causes of such poor statistics are: destroyed tourist infrastructure (partly during the Homeland War); traffic isolation of Požega-Slavonia County and poor traffic infrastructure; mined areas in the western part of the county; unorganised tourist offer; lack of marketing and promotional activities; lack of accommodation capacity; private accommodation makes up 98.50% of total accommodation capacity; and poor educational structure of the population.

Factors of tourism development in Požega-Slavonia County

In accordance with Tourism Development Strategy of the Republic of Croatia until 2020, Požega-Slavonia County published its development strategy entitled County Development Strategy of Požega-Slavonia County 2016-2020. [18] The document emphasises the factors of tourism development in the specified period; however, it

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should be noted that these are generally presented, without concrete measures for their enforceability.

According to the document, we can highlight the following factors of tourism development in the Požega-Slavonia County: cyclotourism, given there are 300 km of mountain bike trails in the county; camping tourism; protected areas such as the Nature Park Papuk; richness of forests and waters; rural areas; and cultural and historical material and non-material heritage. Emerging from this is the development of: hunting, cultural, archaeological, exploratory, research, health, recreational, rural, ecological and wine tourism. However, the emphasis in this County Development Strategy is placed on the development of rural tourism. "The significance of rural tourism is reflected in the interaction between agricultural production of traditional products, presentation of tradition (customs and heritage), traditional gastronomy and other tourist services. The development of rural tourism is based on sustainable development, and is reflected in revitalisation of traditional heritage that is given a new, tourist purpose, which has a valorising, presentational and educational role." [18]

However, even though there is a cross-cultural approach to addressing the problem of the tourist offer of the Požega-Slavonia County, given there is an emphasis on the valorisation of cultural heritage or cultural differences, there is no description of the concrete measures to achieve set objectives, which represent half of the way to success. According to Drucker: "The mission of an organisation must be clear enough and large enough to create a common vision. General objectives that make that vision must be clear, public and constantly reaffirmed. The first goal of the management is to thoroughly consider, set and interpret those specific objectives, values and general objectives of the organisation that it leads." [6] Therefore, the result of a good management is the achievement which is used to measure the achieved objective, which can only be reached by well-directed management.

Drucker also answers the question about the importance of cross-cultural approach to business. According to him, management integrates people into a joint endeavour, thus becoming an integral part of the culture. Managers are performing the same job in different parts of the world, but the way they do it can and must be different, depending on the cultural differences. According to Drucker: "One of the main challenges that managers in developing countries face is to find and identify those elements of their tradition, history and culture that can be used for the design of management." [6] We can apply those principles of cross-cultural management to the strategy for tourism development in Požega-Slavonia County. If the management of Požega-Slavonia County applies the methods of successful tourist management of, for example, Istria or northern Adriatic and infiltrates it in its cultural ground, we can expect results and success in business and governance.

Strategy for tourism development in Požega-Slavonia County with an emphasis on cross-cultural approach

Požega-Slavonia County is located in the continental part of Republic of Croatia and is dominated by lowland and mountain relief. In administrative terms, the county is divided into five towns: Požega, Pakrac, Lipik, Pleternica and Kutjevo, and five municipalities that that occupy the rural part of the county: Brestovac, Čaglin, Jakšić, Kaptol and Velika. Forests cover 45.26%, and arable land 41.93% of the county. There are 142223 ha of arable land planted with grape vine.

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[18] This statistical data points to the great opportunities that Požega-Slavonia County has in developing rural tourism, with an emphasis on oenotourism and gastro tourism. The first step in that process would be to use natural and cultural resources, and to brand Požega-Slavonia County as a place of quality oenological and gastro offers, with an authentic experience of rural and traditional tourism. Here, food and wine should have the central role. Supporting this idea is the study by Berislav Bolfek and others about the perception of Slavonia as a region, and the fact that 29% of the subjects think about Slavonia as a region of wine and tasty traditional food. [3]

Požega-Slavonia County should strengthen and develop its reputation as a destination of high-quality wine and traditional food. The aim of such branding is to discover and highlight the specifics of an offer compared to competition, to become recognisable and, finally, to attract a higher number of tourists, influence the image of a destination, and, consequently, achieve greater revenue. Since there is an ever-growing trend of returning to nature and authentic experience of tradition, tourist offer can be shaped through rural tourism. But, as Damir Demonja and Robert Baćarac claim: "Rural tourism was not formed simply as a need for new tourist capacities (accommodation units, catering establishments - restaurants and other commercial tourist facilities), but also as a need to preserve, revitalise and give a new added value to heritage and authentic promotion of traditional knowledge and skills through the organisation of attractive and original tourist offer." [5] This includes various forms of tradition and cultural heritage: buildings, gardens, folk customs, ways of dressing, songs, dances, food, drinks etc, or, in other words, everything that is a reflection of cultural heritage, and thus forms the spirit of time and space in an authentic way. Besides the already mentioned gastronomy and oenology, also contributing to the thesis about the development of rural tourism is a rich multicultural and ethnological heritage in this area, supported by the fact that 9.6% out of county's total population of 78.034 are members of national minorities (Serbs, Czechs, Italians, Albanians, Hungarians, Slovaks). [18] We should not forget that characteristics of cross-cultural management are well-managed cultural differences.

But, why should gastronomy and oenology be the main brand carriers of Požega-Slavonia County? Simply put, gastronomy and oenology in this part of Croatia are especially rich and already widely recognisable, and as such should be shaped through marketing and management as parts of cultural heritage, since attractiveness of a destination can only be achieved through originality and authenticity. According to the recommendation in Tourism Development Strategy of the Republic of Croatia until 2020, the target groups of oenotourism and gastro tourism are: DINKS (couples with two incomes and without children), empty nesters (couples with independent children), golden age above 65 years and specialised travel agents. Therefore, tourist offer of the county should be adapted to these target groups. In the process of branding the Požega-Slavonia County as an oenotourism and gastro destination, it is necessary to use more of information and communication technology, enrich the gastro offer, develop educational programmes, open and organise wine roads, and connect local food producers with the catering sector.

Gastronomy can thus be the main driver of travel, or it can be a deciding factor when choosing a holiday destination. Some destinations, such as Tuscany, have built their image precisely on

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gastronomy. It is important to emphasize that gastronomy can help with the lack of other content in tourist offer and affect the overall experience of the destination. Ana Žaper says about that: "Cookery is obviously a part of the identity and contributes to the tourist image. Some destinations have a decidedly gourmet image and visitors come there to enjoy the well-known specialties." [17] That way gastronomy becomes a part of cultural heritage. According to Žaper: "Cuisine is associated with the culture of the people and the environment, so the search for original elements has a great significance for preserving the heritage." [17] We can agree with this statement because food tastes and aromas, and the way of its preparation or presentation also constitutes the cultural heritage of a nation. But we can also wonder why gastronomy is not more significantly represented in the branding of some destinations, namely Slavonia or Požega-Slavonia County? The answer lies in the fact that even the local population is often not sufficiently aware of its own spiritual and cultural values, and it is also due to the poor mutual cooperation between local authorities and the cultural and tourist sector, administration, financing problems and inadequate education of the population. We can recognize similar problems in Požega-Slavonia County. Still, the following project shows a good example of how to make gastronomy recognisable through a joint project of cross-cultural management. It is the project headed by City museum of Požega called Museum in a Pot. The project was initiated with the objective of rediscovering forgotten cuisine, and reconstructing and documenting the gastronomic-gourmet tradition of Požega and surrounding area. Through educational workshops, exhibits, and cooperation with the local community, restaurants and the local population, the gourmet tradition of Požega-Slavonia County has thus been revitalised and brought back to the light of day. [15]

Recognisable gastronomy is associated with wine tourism or oenotourism. Since Požega-Slavonia County is known for its high-quality wines and has a long wine-making tradition which has become a part of the cultural heritage of this area, there are major prerequisites for branding Požega-Slavonia County as the centre of oenotourism in Slavonia. Supporting that claim is the fact that Kutjevo, one of the most prominent wine growing regions in Croatia, is located in the eastern part of Požega-Slavonia County and produces 27% of total amount of graševina (welschriesling) produced in Croatia. Oliver Kesar and Danijela Ferjanić define oenotourism as: "A specific form of tourism which does not include just wine tastings in places outside of permanent residence, but it also includes various activities such as visits to vineyards and wineries, participations in wine festivals and visits to wine exhibits, educational and cultural aspects of production and consummation of wine, and many other wine-related activities in open and closed spaces." [9] Therefore, the first prerequisite for branding the Požega-Slavonia County as an area of oenotourism must surely be a good management of that process. But how is success of oenotourism reflected? According to Kesar and Ferjanić: "Oenotourism can be successfully developed in regions that have preserved natural values, a long wine-making tradition and appropriate technology, even in times of economic crises, but it requires timely reaction, careful planning and sophisticated advertising." [9] Of course, the latter refers to the timely management which includes management of the existing resources in order to achieve the objective, which is to brand the county as recognisable oenologist region. That would primarily refer to creation and development

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of wine roads in the eastern part of the county, where visitors can experience the unique features of this wine region, the cultural identity and tradition related to oenology and gastronomy, and thus the social dimension of this region. A good step in the management during the branding process could be the creation of clusters of manufacturers from the area, primarily food and wine manufacturers. According to Kesar and Ferjanić, creation of clusters has multiple significance in the development of tourism and economy. They explain that: "Such clusters represent the key component of rural tourism development, where the creation of the network for development of oenotourism equally implies horizontal (within the wine industry) and vertical integration (between several branches of industry), thus creating a complex cross-sectoral network with a clear vision, mission and goals." [9] Clusters in the area of Požega-Slavonia County would create better business opportunities for small manufacturers and would allow them the inclusion in a market race where they can hardly succeed themselves.

Negative sides of oenotourism should also be mentioned. First of all, there is an inadequate awareness of wine producers about business practices and market rules. That means that most wine producers are concentrated only on the wine-making process, while they completely neglect marketing, not realising that the time when wine was sold exclusively in cellars has passed. The image of oenotourism should also be influenced. As Kesar and Ferjanić say: "Although wine roads, wineries, and especially wine cellars can develop an exclusively designed tourist product, the image of oenotourism is still linked to village and rural mentality and as such has limited opportunities to become a product with a high added value." [9] Therefore, the trend of a multidimensional experience of the wine region should become an imperative, and the idea of wine as a way of living should be promoted. The problems that arise in the development of oenotourism are local authorities' lack of interest in development projects, the lack of a common goal and vision for development of the region, the lack of investment, and the resistance of the local population to change. Supporting the last claim is the index of (under)development of Požega-Slavonia County despite numerous natural and cultural resources, which are not purposefully or reasonably managed with regard to developmental. According to the data by Ministry of Regional Development and EU Funds for 2013, the development index for Požega-Slavonia County is 33.81%, or 75% less than the state average, with the average unemployment rate of 64.66%, placing this county among the five most underdeveloped counties in Croatia. [7]

Since good management is the basis of every successful business, that should also apply to the example of regional development, in this case the Požega-Slavonia County. But, according to Drucker, only the question: "What will be our job?" has a goal of predicting changes. [6] Here it is not just about future business, but also about the systematic analysis of existing conditions and abandoning the outdated way of thinking and doing business, which is no longer bringing changes. According to Drucker: "Defining the purpose and mission is an arduous, painful and risky process. Objectives are not destiny; they direct. They are not commands; they are common commitment, an agreement. They do not determine the future; they are ways to mobilise the energy and resources of companies to create the future." [6] Cross-cultural management can have a key role in that.

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Conclusion

This paper deals with cross-cultural management, with the emphasis on possibilities of this kind of management in Požega-Slavonia County. In modern business and governance, cross-cultural management is becoming ever more influential. By recognising and properly managing cultural differences, it is possible to improve the business or to achieve the objectives. Important segments of cross-cultural management are culture and tradition. When properly managed, they offer an advantage compared to competition, because culture and tradition guarantee cultural differences and authenticity, which are values that are very much in demand in the modern globalised world.

The example of Požega-Slavonia County demonstrates the lack of good cross-cultural management, because despite the wealth of natural resources, due to the lack of good management, the underdevelopment of this area is more than 75% of the state average. There are multiple reasons for this, and we can certainly find them in a poor management of culture and tradition of this area. Therefore, the emphasis in this paper is on better and more purposeful management of culture and tradition which can help the development of the county through rural tourism. Gastronomy and oenology should certainly have the key role, since those are the elements that already have good predispositions for further development. But, analysed documents such as Tourism Development Strategy offer only generalised development solutions. In order to encourage the inclusion of culture and tradition in the modern management of Požega-Slavonia County, and thus stimulate the development of this area, it is important to approach this problem in a complex and targeted manner. It is precisely the cross-cultural management which provides a good basis for further research into this problem.

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