



## STUDIES ON THE SOCIAL JUDGMENT OF PAPER-BASED COMMUNICATION IN A SPECIAL ENVIRONMENT

Csaba HORVÁTH<sup>1</sup>, Erzsébet NOVOTNY<sup>2</sup>

<sup>1</sup>Óbuda University, Institute of Media Technology and Light Industry Engineering, Doberdó u. 6.  
H-1034 Budapest, Hungary

<sup>2</sup>ANY Security Printing Company, Halom u. 5. H-1102 Budapest, Hungary

### **Abstract:**

*At the Óbuda University, the Faculty of Light Industry and Environmental Engineering has a distinctive educational feature. They concurrently educate environmental engineers, as well as light industry engineers with specialization in printing and paper-related technologies. The researchers have examined how in this environment the opinions and attitudes of the environmental engineers studying at the faculty change in connection with paper-based communication. Conclusions concerning the marketing actions that are capable of efficiently influencing changes in the attitude of the society have also been drawn for the popularization of printed communication.*

**Keywords:** paper-based communication, electronic communication, sustainability, Twosides

### **1 INTRODUCTION AND BACKGROUND**

Printed communication (the Gutenberg Galaxy) has been the key vehicle of culture and information exchange for centuries. Its social role and significance have far surpassed the economic power that it has represented. The first devices of electronic communication, the radio and television did influence this role, yet could not suppress its significance. On the other hand, the appearance of the Internet has brought revolutionary changes in the structure of printed communication and its role as an information conveyor in society. The Gutenberg Galaxy has lost its principal leading role, and become a part of the communications business just within two decades. This process has been further aggravated by the emerging and strengthening, rather unjustified indisposition against paper-based communication in the society for its erroneously alleged environmentally impairing effects. "Paperless" campaigns for the popularization of electronic communication and the strongly biased approach of environmental organizations, movements for saving rainforests tend to reinforce each other to shape adverse opinions [1].

The responses of the actors that are interested in the sustenance of paper-based communication encompass various measures for the introduction of sustainable and responsible forest management, environmentally friendly printing, as well as the associated popularizing campaigns. Most of them target the customers of printed products, and also have the goal of exercising positive influence on social judgment [2].

It was in 2011 when in representation of Hungary the Federation of Hungarian Printers and Paper Makers joined the Twosides<sup>1</sup> initiative that is a joint positive marketing campaign in protection and for the popularization of paper-based communication. To create and implement a domestic campaign, this organization has offered financial support and the use of a communications tool kit. In these activities, the Federation has relied on the "Institute of Media Technology and Light Industry Engineering" operated at the Óbuda University as the Hungarian knowledge centre of the print and paper industry.

<sup>1</sup> Twosides an initiative by companies from the Graphic Communications Supply Chain including forestry, pulp, paper, inks and chemicals, pre-press, press, finishing, publishing, printing, envelopes and postal operators. Their common goal is to promote the sustainability of the Graphics Communication Supply chain and dispel common environmental misconceptions by providing users with verifiable information on why print and paper is an attractive, practical and sustainable communications medium.



Our institute used certain tools provided by Twosides as experimental means for the provision of information to students. Our faculty, i.e. the Faculty of Light Industry and Environmental Engineering at the Óbuda University has a distinctive educational feature. We concurrently train environmental engineers, as well as light industry engineers with specialization in printing and paper-related technologies.

Another specialty is that the students belonging to various majors within the Faculty share basic subjects of science, economics and technology, and therefore they frequently meet each other in person, as a result of which they have a number of common programs, regular personal communication.

Furthermore, during their studies students of environmental engineering can become familiarized with light industry technologies, as well as paper and printing technologies in Semester 6.

This special situation has been exploited to observe whether the attitude of students of environmental engineering being particularly committed to environmental protection changes, and if yes, how during the five semesters when they are targeted by the campaign popularizing paper-based communication, but they are not in possession of technological knowledge of the topic.

## 2 RESEARCH METHODS

The students of environmental engineering who start to study paper and printing technology as a separate subject in Semester 6 are requested to complete 3 questionnaires at the beginning of the first lecture in order to unveil their opinions and knowledge of paper-based communication.

The first questionnaire focuses on their opinions and attitudes, whereas the second is based on Twosides' "Myths and Facts" publication to assess as to what extent they have adopted the false views that are widespread in public opinion. The third questionnaire reveals from what sources they have derived information that positively influences their opinions.

Since February 2010, the first questionnaire has been completed by all the students from all years, while the second and third questionnaire was introduced a year later, in 2011, and therefore the results cover this period of time.

At our faculty, we began to popularize paper-based communication in 2011, partly with the use of Twosides' campaign tools and materials, and partly by disseminating the works of light industry engineering students specialized in printing technologies.

Thus, we assessed the opinions of those students of environmental engineering (as basic information) who still not had been "infected" by the marketing effects of printed communication, and how and to what extent such a campaign could exercise its influence, and which tools proved to be effective.

The following three questionnaires (Table 1–3) were compiled for the assessments. It is apparent that we worked with multiple choice tests so that the answers could be unambiguously processed.

*Table 1: Opinion-requesting test*

	<b>Test questions</b>
1	Do you like reading?
2	Do you read any book in the last month?
3	Have you ever been to a printing plant or digital printshop?
4	What do you prefer? Printed materials to read or digital data carriers?
5	Is the operation of the Internet and use of computers detrimental in any way to the environment?
6	Is the print technology sustainable?



7	Which of them causes larger environmental loading: electronic or graphic communication?
8	Do you have an e-book reader (or tablet)?

*Table 2: Myths and facts [2]*

	<b>Myths</b>	<b>Facts</b>	<b>True?</b>	<b>False?</b>
1	Making paper always destroys forests.	Paper production supports sustainable forest management.		
2	Well managed planted forests are essential to meet increased demand for forest goods,	Planted forests are bad for the environment		
3	Paper is bad for the environment	Paper is one of the few truly sustainable products		
4	Most energy used renewable carbon intensity is surprisingly low.	Making paper uses a lot of non-renewable energy and has a high carbon footprint.		
5	Only recycled paper should be used.	Paper made from sustainable forests is needed to start the paper cycle.		
6	Paper is one of the most recycled products in the world.	Print and paper is wasteful product.		
7	Electronic communication is more environmentally friendly than print and paper.	Not necessarily e-media also has environmental impacts.		
8	Many consumers value paper based communications	Digital is now the preferred means of communication.		
9	Paper based packaging protects goods, reduces waste and is recyclable.	Packaging is wasteful and unnecessary.		

*Table 3: Positive influence*

	<b>What have you perceived as positive influence on your opinion in relation to paper-based communication at the university?</b>
1	Exhibitions of students of printing technology
2	"Open Door" events of the Institute of Media Technology and Light Industry Engineering



3	Conversations with students of printing and paper engineering
4	Publications and notices given or hanged out in the building of the Faculty in connection with the paper industry and printing
5	Paper making practices in the framework of the open laboratories campaign
6	Demonstrations of printing engineering students held in the aula for the popularization of their profession
7	Influences from other sources
8	Has your opinion changed positively in relation to paper-based communication?

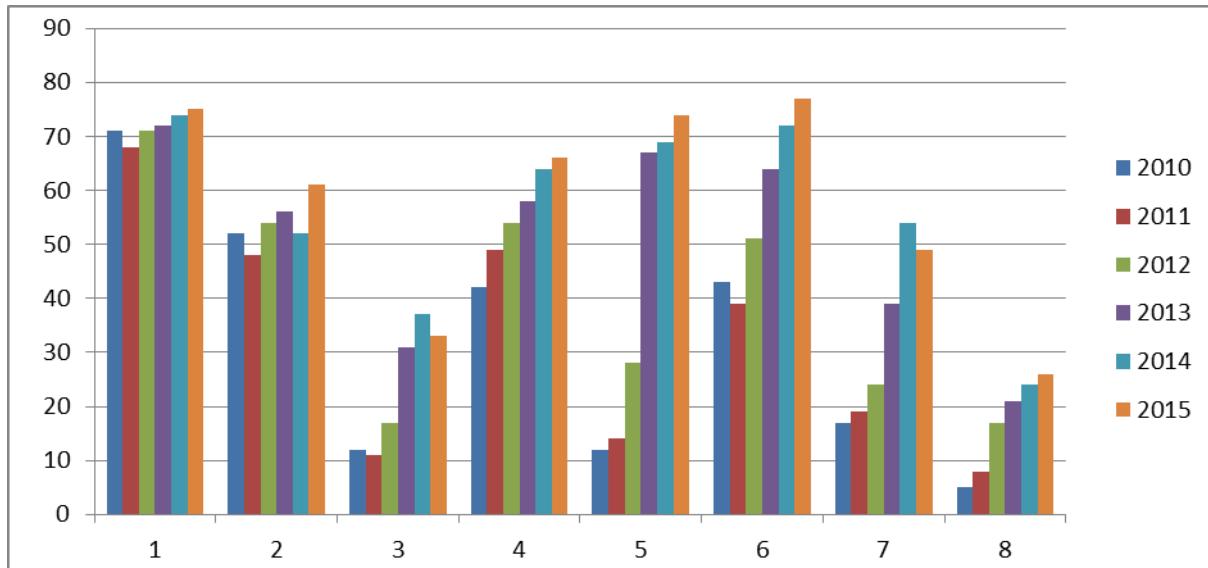
### 3 RESULTS AND DISCUSSION

The dates of the completion of the tests and questionnaires described in the previous chapter, as well as the numbers of students asked are summarized in Table 4. (The tests were completed by all the students of environmental engineering from the given Semester 6.)

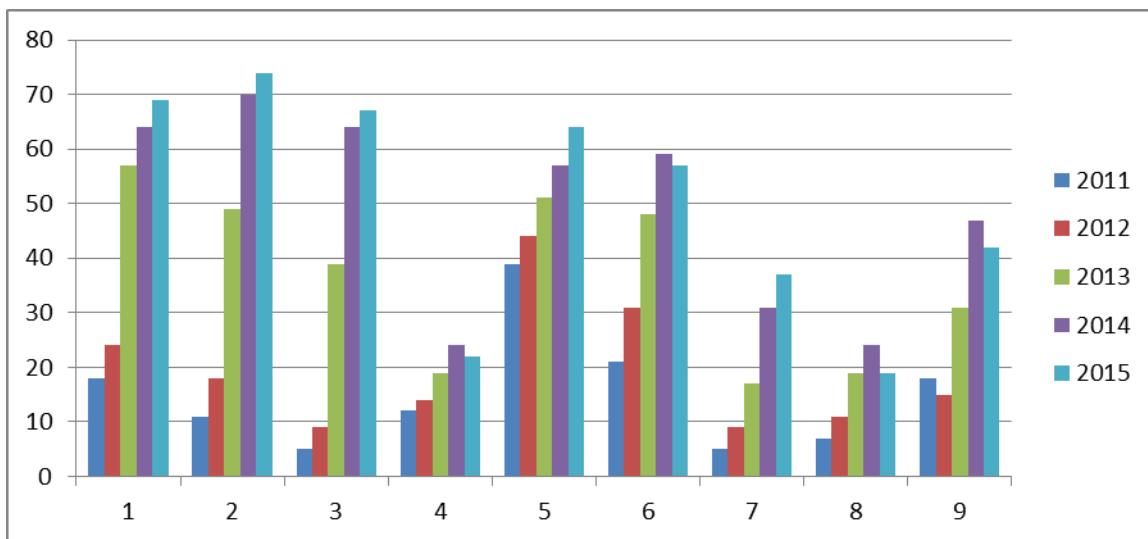
*Table 4: Number of students of environmental engineering having completed the questionnaires and tests*

	<b>Year</b>	<b>Date</b>	<b>Number of students</b>
1	2009/2010	February 2010	37
2	2010/2011	February 2011	31
3	2011/2012	February 2012	35
4	2012/2013	February 2013	40
5	2013/2014	February 2014	51
6	2014/2015	February 2015	42

Figure 1–3 demonstrates how responses given to the individual questions changed during the years. Percentage ratios as a specific dimension have been used to adjust the different numbers of respondents from the individual years for the purpose of the analysis.



*Figure 1: Percentage rate of the positive answers given to the questions, in summary of the students' opinions*



*Figure 2: Myths and facts  
 Percentage rate of correct answers concerning Print & Paper*

Trends shown by the responses of students clearly reflect that the factors of positive influence presented in Table 3 have had increasing influence on the students over the years. Especially the assessment in February, 2013 and thereafter suggest such changes.

Correlations are even more clearly revealed when the diagrams for the time and characteristics of the campaign that was commenced at the Faculty in 2011 – for the popularization of paper-based communication – are compared with the results collected from the answers.

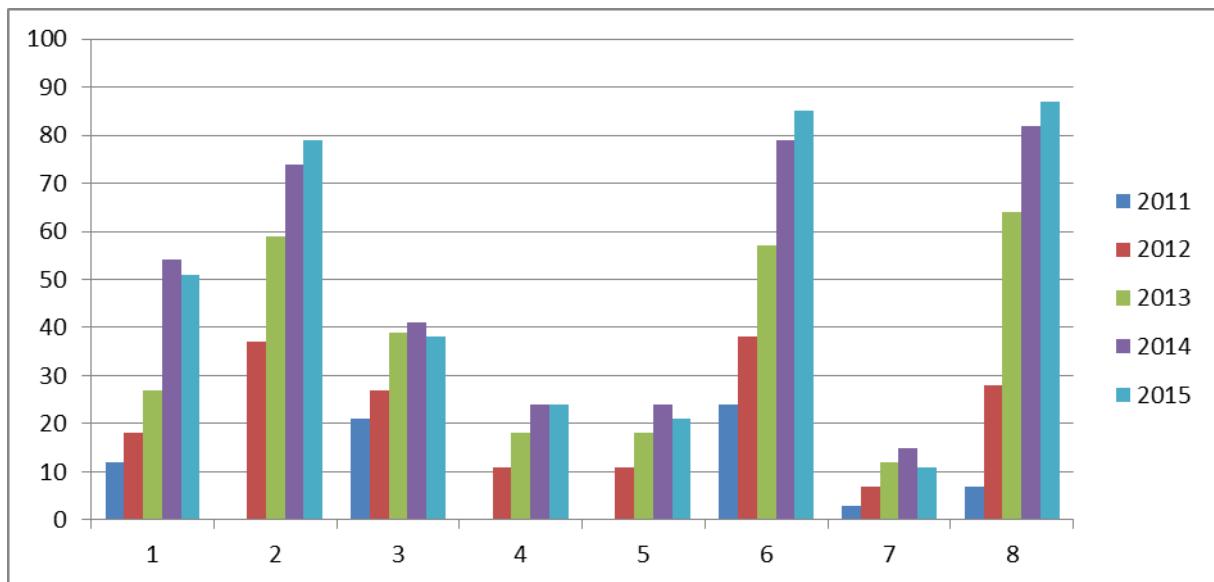


Figure 3: Percentage rate of the factors of positive influence

From among the results of positive influence – at the same time it can be taken as notable experience – it is to be highlighted that respondents were affected to the largest extent by events that demanded activeness on their part.

This experience has been exploited by the Hungary the Federation of Hungarian Printers and Paper Makers in its own campaigns organized to reach the entire society.

#### 4 CONCLUSIONS

Summarized in this extended abstract, the results of the assessment evidence that considerable influence can be exercised on the opinions of the students of environmental engineering – who are the most committed to environmental protection – in the environmental impacts of printed communication in case they find themselves in a developing environment that well represents real facts. These results clearly show that students from the years that have not or have just shortly encountered the campaign have nurtured social prejudices. On the other hand, those who have spent more time with the campaign at the Faculty could more easily accept true facts. Finally, the views of the most recent years on printed communication have changed to a convincing extent.

#### References

- [1] Macro, K.: THE FUTURE OF PRINT SALES, PRINTING INDUSTRIES PRESS, SEWICKLEY, PA, 2013, p.101, ISBN 978-0-88362-770-9
- [2] PRINT AND PAPER MYTHS AND FACTS, TWOSIDES, DAVENTRY, UK, 2014, September, p. 22

#### Corresponding author:

Dr. Csaba Horváth  
Óbuda University, Institute of Media Technology and Light Industry Engineering,  
H-1034 Budapest, Dóberdó u. 6.  
Hungary  
E-mail: horvath.csaba @rkk.uni-obuda. hu  
Phone: +36 30 9355840