

# **POLISH AND JAPANESE STUDENTS' DIGITAL COMPETENCE IN THE AREA OF ON-LINE ADVERTISING. SIMILARITIES AND DIFFERENCES**

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## **ABSTRACT**

The paper aims to assess the degree of similarities and differences between the selected components of digital competence possessed by the students of economics higher education institutions in Poland and Japan in the area of on-line advertising. The first part of the paper presents its conceptual framework, a literature review, a research model and a research question. The analysis is based on the authors' research conducted under a 2019 grant of the National Science Centre in Poland entitled *Information Asymmetry in On-Line Advertising in the Context of E-Consumer Behaviour Manipulation* [2018/29/B/HS4/00563]. The conducted pilot research (May 2019) covers Polish (N=138) and Japanese students (N=198). The results of a comparative analysis point to similarities as well as differences between the key components of digital competence in the two analysed groups of students. Simultaneously, they are not consistent with Poland's and Japan's spot in the I-DESI ranking – the development of the digital economy and society. The study is part of the research analyses in the field of contemporary marketing and its trends in the context of internationalization and digitalization. Also, the results of the research study contribute to a debate on teaching programmes at economics universities.

**KEYWORDS:** digital competence, on-line advertising, Polish students, Japanese students

## **INTRODUCTION AND OBJECTIVES - RESEARCH QUESTION**

The paper presents the results of the analysis of digital competence possessed by Polish and Japanese students (majoring in economics, including management and marketing) in the area of on-line advertising. The knowledge of such competences is a basis for reliable and methodologically sound assessments of information asymmetry in on-line advertising and its consequences reflected in manipulating buyer behaviour. The pilot project is an important part of the 2020 basis research programme which covers enterprises, advertising agencies and consumers. The undertaken problems and research questions refer to students' experience in the use of on-line services, on-line purchases, and the knowledge of key on-line advertising technologies.

## **CONCEPTUAL FRAMEWORK / LITERATURE REVIEW /RESEARCH MODEL**

The problem of competences is analysed by a number of disciplines in the area of sociology, economics and management sciences, including HRM (Armstrong, 2006; Davies, Fidler and Gorbis 2011; Le Deist and Winterton 2005; Rothwell and Duboise, 2003; Prahalad and Hamel 1990). In the conceptual framework we stress several important aspects. The discourse presents diversified approaches, the evolution of attitudes and the characteristics of competences. What the above have in common is the recognition of the fact that competences represent

a set of abilities with regard to knowledge, skills and attitudes which are required from an individual by the environment under any professional and social circumstances. They represent the function of a human's values and tasks and the possibilities of achieving them through individual or team effort. They are individually created and developed through education, experience, and the anticipation of future challenges, events and expectations.

The results of the research of the academic community presented in this paper suggest that more attention should be given to the structure of competences in university teaching programmes.

The specific components of competence and the general framework for its development vary from country to country (USA, EU, Japan). There is no doubt, however, that digital competence is a significant component of 21<sup>st</sup> century key competences, and that universities – independently of the on-going debates on the mission and character of contemporary universities (Humboldt model vs entrepreneurial university) – are the major institutions which facilitate the development of such competences at the highest possible level (Enders and Westerheijden 2011; Dobins and Kwiek 2017; Nimon 2007).

21<sup>st</sup> century competences comprise a set of fundamental and general skills which allow for resolving the problems of the changing world affected by globalization processes in their various dimensions, digitalization processes, the development of digital technologies and the creation of the network society (Castells 2009; Harari 2018; Fadel et al. 2015).

The above synthetic components of the conceptual framework constitute a basis of the research model (Fig. 1. ).

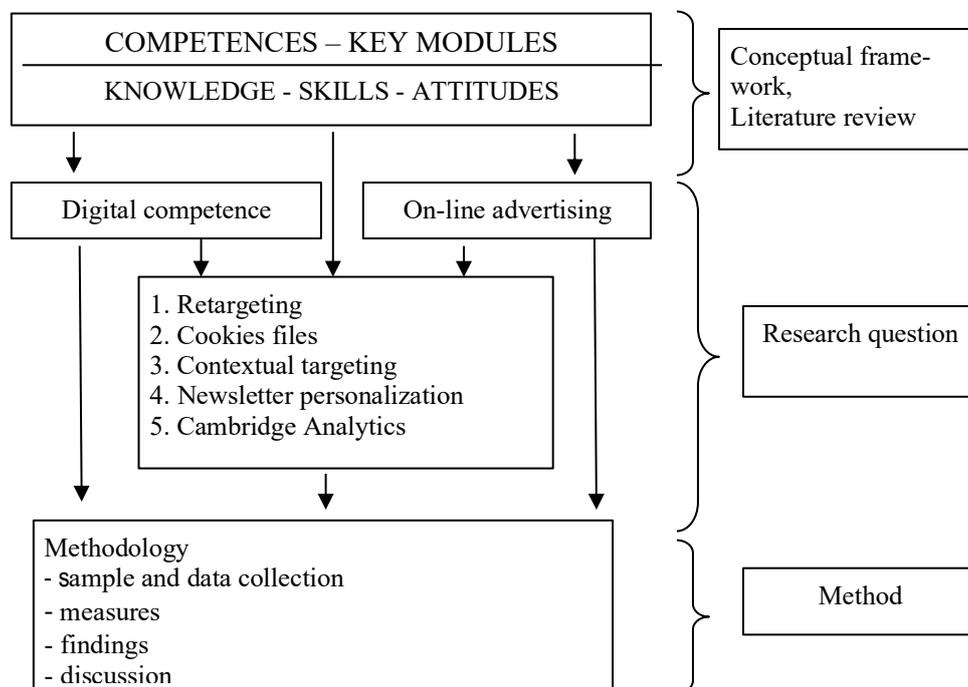


Fig. 1. Research Model

Source: own study

The EU identifies 8 skills which are indispensable for personal development and self-realization, social integration, active citizenship and participation in an international and open labour market. They represent an integrated set of three fundamental components:

knowledge, skills and attitudes. The key competences include the following: 1) Literacy competence, 2) Multilingual competence, 3) Mathematical competence and competence in science, technology and engineering, 4) Digital competence, 5) Personal, social and learning to learn competence, 6) Citizenship competence, 7) Entrepreneurship competence, 8) Cultural awareness and expression competence (EP 2006; Decision 2006; Council 2008; EC 2015).

The framework and challenges for developing and creating competences in the US academic community are set forth in *Partnership for 21st Century*. They are as follows: 1) the 4 Cs – critical thinking, creative thinking, communicating, and collaborating, 2) life and career skills, and 3) technological skills – digital competence and the skills to use ITC. Each component is an aggregate – it describes specific requirements related to knowledge, skills and social attitudes (Ravitch 2009; NCREL&Matri Group 2019, Trilling and Fadel 2009).

Programme for International Student Assessment (PISA), Ananiadou and Claro (2009) provide a typology of the digital competencies in three different levels:

1. ICT [information and communication technologies] functional [competences], that includes [competences] relevant to mastering the use of different ICT applications;
2. ICT [competences] for learning, which include [competences] that combine both cognitive abilities or higher-order thinking [competences] with functional [competences] for the use and management of ICT applications;
3. twenty-first century [competences] which bring together [competences] considered necessary in the knowledge society but where the use of ICT is not a necessary condition.

Cerisier et al. (2008) consider that higher-level competences (i.e., the twenty-first century competences) are not systematically related with IT uses. Nevertheless, Cerisier et al. (2008) consider that “transversal competences” and “meta-competences” (for learning) are higher-level competences, whereas Ananiadou and Claro (2009) do not consider that “ICT competences for learning” are higher-level competences.

This structure of competences is significant, but we accept it with certain reservations. On the one hand, digital competence is a significant component of “key competences”. On the other hand, we stress that they also constitute part of the remaining components of competences. We point out that digital competence is always linked – directly or indirectly – to other aspects of life and professional activities as well as the remaining “types of competence”. Consequently, digital competence can be referred to as “dual competences”. As such, they represent a sum of IT competence and professional knowledge related to a specific area of life, economy and business. In the context of the subject of this paper, it is the relevant knowledge about marketing and communication with the environment through on-line networks and advertising (Juska 2017; Kotler et al. 2017; Ogilvy 2007; Brettel and Spilker-Attig 2010, Young 2019).

Designing specific on-line advertising tools and assessing specific advertising campaigns must rely on the knowledge about the two areas – DigComp 2.0 is indispensable for rational activities and reliable assessment. Digital competence, in its dual character, should be a permanent and significant component of 21<sup>st</sup> competences – the competences of the future. They should also set directions for developing 21<sup>st</sup> century university educational programmes.

## METHOD

### Sample and data collection

Due to the indicated title goal of the research, students of economics in Poland and Japan were the participants in the study. The study was conducted in May 2019. Originally, the questionnaire was developed in the Polish language. The next version of the tool was developed in English, in order to meet the requirements of content validity (McGorry 2000). The next step after constructing the research tool was to conduct pilot studies using the Polish version of the questionnaire. The aim of the pilot (Bryman 2008) was to check if the questions were understandable by respondents, whether the number of questions was adequate and whether any of the questions were skipped by them. The pilot study involved 198 Japanese and 138 Polish students - 336 people. The implementation of the research was possible thanks to the cooperation undertaken between Cracow University of Economics and Meiji University in Tokyo.

### **Measures**

The questionnaire of choice consisted of 5 parts, and a few demographic questions:

1. Questions introducing the experience and methods of Internet use
2. Rating of advertisers' intentions and advertising messages
3. Evaluation of the impact of advertising on e-consumers
4. The role of advertising in the process of online shopping
5. Evaluation of respondents' knowledge in the field of online marketing

The aim of the introductory questions was to discover how and how often the students used the Internet, social networking sites and made purchases online. To learn about the respondents' experiences with the Internet, they were asked to rate statements regarding the use of the Internet in the scale of 1-5.

In the second part of the research tool, the respondents made an assessment of the intentions of advertisers and advertising messages. In particular, they assessed the credibility of the various forms of online advertising, such as online video advertising, online reviews, sponsored articles, banner ads, websites, bloggers' and celebrities' opinions.

### **Descriptive statistics of the sample**

Analysis of demographic data on the respondents allowed us to conclude that the majority of the respondents were people between the ages of 18 and 25 years old. This applies to both Polish (95.6%) and Japanese students (99.5%).

## **MAIN RESULTS**

The research study aims to identify and assess the selected components of digital competence possessed by students in the two analysed countries. This area of competence is regarded here as a significant characteristic of the respondents who assess information asymmetry in on-line advertising and its impact on market behaviour. The starting point for assessing respondents' digital competence is the frequency of the use of on-line services. It is assumed that this variable is significantly correlated with the knowledge about and skills to use on-line resources, thus confirming – although indirectly – level 2 and 3 digital competence.

The results of the research indicate that 54% of Japanese students use the Internet on a daily basis, and 35% of them stay on-line practically all the time. 69% of Polish students state that they stay on-line all the time. This result – considering the fully equivalent character of the research tool – may seem surprising from a cognitive perspective in the context of considerable differences between Poland and Japan in the development of the digital economy and society.

The other research objective is to identify the respondents' place and activities in the web. This characteristic is referred to their presence in social media, which is regarded as a significant component of digital competence. The results of the analysis fully confirm an a priori assump-

tion about a frequent use of social media by students, but they also indicate considerable differences between the two groups with regard to specific preferences. 99% of Polish students declare the possession and use of social media accounts. Such services are also commonly used by Japanese students but to a smaller degree (88% of respondents). The most popular portal in Poland is Facebook – used by 99% of students, while the respective figure for Japan is merely 20%. This considerable difference is attributed by analysts (e.g. Acar 2011) to the lack of anonymity, which the Japanese consider to be an important aspect of their presence in the virtual world. Instagram enjoys great popularity – used by 83% of Japanese and 85% of Polish students. It should be noted that LinkedIn, a portal for creating networks of professional contacts, is not very popular among economics students. It is used by a mere 31% of Polish and 5% of Japanese students.

It is assumed that on-line shopping skills and experience are regarded as a significant component of digital competence. Undoubtedly, such experience confirms the possession of digital knowledge and skills. We also refer it to the possibility of making reliable and fair judgements in the area of on-line advertising as well as information asymmetry in advertising messages and manipulating consumer behaviour.

The results of the study point to the respondents’ extensive on-line shopping experience in both countries. 88% of Japanese students make several on-line purchases during one year, and in this group - 37% of them several times a month. Polish students make such purchases even more frequently - 99% of them use e-commerce several times a year, including 47% of respondents making on-line purchases several times a month. A slightly larger proportion of Polish students (approx. 10 percentage points) seems surprising in light of the macroeconomic characteristics of informatization in Poland and Japan. It should be stressed, however, that the above results point to a high level of digital competence in the two analysed groups.

In accordance with the adopted research assumptions, the basic components of digital competence are referred to the knowledge about on-line advertising and IT. Therefore, an important role is played in the analysis by a diagnosis of students’ knowledge – their acquaintance with and understanding of various categories and issues related to on-line advertising. The questions addressed to the respondents referred to their knowledge about retargeting and its categories, contextual targeting, cookies files, personalization, and the Cambridge Analytica scandal. The obtained results are presented in Table 1.

Table 1. Knowledge about selected issues of on-line marketing and IT among Polish and Japanese students.

Issues related to on-line marketing and digital technologies	Structure of correct answers (%%)	
	Polish students	Japanese students
Understanding of the term “retargeting”	72%	25%
Knowledge about cookies	84%	32%
Knowledge about definitions of contextual targeting	49%	43%
Understanding of the term “newsletter personalization”	52%	36%
Knowledge about the Cambridge Analytica scandal	12%	32%

N = 336, Poland N= 138, Japan N= 198

Source: own research

The knowledge about the analysed terms among students is disappointing: many of the respondents who use the Internet on a daily basis and who are e-consumers and attend university economics programmes are not acquainted with the mechanisms of ITC tools which facilitate on-line advertising manipulation. Surprisingly, students are ignorant about the Cambridge Analytica scandal (especially Polish students, nearly all of them being Facebook users).

Attitudes, apart from knowledge and skills, represent a significant component of competence. Therefore, the next research area is the identification of the respondents' attitude to the Internet. Students agree with the statement that access to the Internet is indispensable for performing everyday tasks (77% of Poles, 68% of the Japanese), although in the case of young people one could expect 100% of positive answers. The respondents state that access to the Internet facilitates maintaining contacts with friends (95% of Poles, 68% of the Japanese) as well as performing professional tasks (90% of Poles, 71% of the Japanese). In presenting such a distribution of responses and distinct differences in attitudes to the Internet, we should stress statistically significant differences in attitudes (the Mann-Whitney U test,  $p < 0.05$ ). Polish students, unlike their Japanese counterparts, see the Internet as a greater source of opportunities for both professional and life careers.

In the following analysis we asked the respondents about the reasons for which they would share their personal information online. On the basis of the detailed verification of the results obtained, it was indicated that Polish students are much more willing to provide their personal data in exchange for discounts. This is what 46% of the surveyed Poles and only 25% of the Japanese indicated. This difference is statistically significant ( $\chi^2$  of Pearson  $p < 0.05$ ). The results indicate that the willingness to provide personal information in exchange for a discount in exchange for signing up for a newsletter depends on the country of the student's origin. The contingency coefficient thereof was 0.21 (Table 2).

Table 2. Willingness of students to provide personal data in exchange for discounts. Pearson's  $\chi^2$  test for Polish groups ( $N = 138$ ) and Japanese students ( $N = 198$ ).

Statistics	Polish vs Japanese Students		
	Chi-kwadr.	df	p
Chi <sup>2</sup> Pearson	16,18787	df=1	p=,00006
Chi <sup>2</sup> NW	16,09674	df=1	p=,00006
Fi for tables 2 x 2	,2194953		
Tetrachoric Correlations	,3471921		
Contingency Factor	,2143916		

Source: own research

### CONCLUDING REMARKS

The paper presents a comparative analysis of the selected components of digital competence possessed by Polish and Japanese students in the area of on-line advertising. It is

an initial stage of a research study of information asymmetry in on-line advertising scheduled for the year 2020. The pilot project comprises the following issues: the knowledge about basic IT components, the ability to use this knowledge, experience in the area of using the web, on-line advertising, and attitudes to the Internet.

The analysis covered a group of 336 respondents: 198 Japanese students (58.9%) and 138 Polish students (41.1%), and was conducted in May 2019 at two universities in Poland and Japan among students majoring in economics and business. The results point to similarities between the two groups with regard to the frequency of the use of the Internet and the number of on-line purchases. Simultaneously, they indicate different preferences in the use of particular social media portals. The survey reveals the lack of knowledge about the basic categories at the interface between IT and on-line advertising (retargeting, cookies, contextual targeting, newsletter personalization, and the significance of the Cambridge Analytica scandal). It is all the more surprising that respondents major in economics and business. It may imply a superficial character of knowledge in these areas. The ability to use the web is not accompanied by the knowledge about basic on-line advertising and e-marketing categories. Statistically significant differences at an international level (U Mann-Whitney test) are observed in students' attitudes to the Internet and their (un)willingness to make their personal data available to the web under the influence of sales promotion encouragements (Chi<sup>2</sup> Pearson test, contingency coefficient).

The presented results of the comparative analysis show similarities as well as differences with regard to the basic components of digital competence possessed by Polish and Japanese students. The obtained results have a cognitive value. Simultaneously, they are characterised by certain limitations resulting from the size of the research sample, the selection of participants, and the limitations of the structure of competence and on-line advertising. They contribute to contemporary marketing research studies focused on internationalization and digitalization. They encourage further research in international teams, which is also referred to in the title of this paper.

### **LIMITATIONS**

The limitations of the pilot research study result from the size of the research sample, the selection of participants, and the reduction in the structure of digital competence and on-line advertising to 5 components. The study contributes to contemporary marketing analyses characterised by such development trends as digitalization and internationalization. It should be emphasized that the presented results - interesting from a cognitive point of view - are a contribution to further, more methodologically complex research. The presented pilot study is a part of greater research proceeded with rules of triangulation - quantitative questionnaires will be accompanied by qualitative studies: in-depth reviews and quasi-experiments. A valuable field of research will be continued in terms of differences between students of different nationalities and different fields of study.

### **FURTHER RESEARCH**

The undertaken problem and its significance encourages further research studies on digital competence and on-line advertising in international teams, which is referred to in the title of this paper.

### **MANAGERIAL IMPLICATIONS**

The problem of developing students' competence in the area of digitalization and advertising is of key significance to creating educational programmes at economics universities, especially in such fields as marketing, marketing communication and applied informatics. It also provides

a platform for developing the competences of university graduates and their career paths on the labour market.

## REFERENCES

- Acar A. (2011), The problem with Facebook in Japan, <https://www.techinasia.com/problem-with-facebook-in-japan> [1.10.2019].
- Ananiadou, K., & Rizza, C. (2010). ICT in initial teacher training: First findings and conclusions of an OECD study. Proceedings of EDULEARN10 Conference. Valencia: International Association for Technology, Education and Development, 5621–5632.
- Armstrong M (2006). Human Resource Management. Practice, Kogan Page, London and Philadelphia.
- Brettel M., Spilker-Attig A. (2010). Online advertising effectiveness: a cross-cultural comparison, *Journal of Research in Interactive Marketing*, vol. 4 no (3) pp. 176-196.
- Bryman, A. (2008). Social research methods. 3rd Edition, Oxford University Press., New York.
- Castells M. (2009). The Rise of the Network Society, Blackwell.
- Cerisier, J. F., Rizza, C., Devauchelle, B., & Nguyen, A. 298 (2008). Former des jeunes à l'usage des medias.
- Council (2008). COUNCIL RECOMMENDATION of 22 May 2018 on key competences for lifelong learning (Text with EEA relevance) (2018/C 189/01), Official Journal C 189 of the European Union Volume 61 English edition Information and Notices 4 June 2018. (including: ANNEX: KEY COMPETENCES FOR LIFELONG LEARNING A EUROPEAN REFERENCE FRAMEWORK. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2018:189:FULL&from=PL> [30.09.2019].
- Davies A., Fidler D., Gorbis M., Future Work Skills 2020 (2011). Institute for the Future University of Phoenix, Phoenix.
- Decision (2006). Decision No 1720/2006/EC Of The European Parliament and of The Council of 15 November 2006 establishing an action programme in the field of lifelong learning, 24.11.2006 EN Official Journal of the European Union L 327/45.
- Dobbins M., Kwiek M. (2017). Europeisation and globalization on higher education in Central and Eastern Europe: 25 years of changes revisited (1990-2015), *European Educational Research Journal*, vol. 16 (5), p. 519-528.
- EC. (2015). EUROPEAN COMMISSION, A Digital Single Market Strategy for Europe {COM(2015) 192 final}, Brussels, 6.5.2015 SWD(2015) 100 final. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015SSC0100&from=en> [30.09.2019].
- Enders J., de Boer H., Westerheijden E (ed.). (2011). Reform of Higher Education in Europe, Sense Publisher; Rotterdam.
- EP (2006). RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 on key competences for lifelong learning. <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:en:PDF> [25.09.2019].
- Fadel Ch., Bialik M., Trilling B., Four-Dimensional Education: The Competencies Learners Need to Succeed, CreateSpace Independent Publishing Platform, 2015.
- Harari Y. N. (2018). 21 Lessons for the 21<sup>st</sup> Century, Jonathan Cape, London.
- Juska M. J. (2017). Integrated Marketing Communication. Advertising and Promotion in a Digital World, Routledge.
- Kotler Ph., Kartajaya H., Setiawan I. (2018). *Marketing 4.0. Moving from Traditional to Digital*, John Wiley & Sons.

- Le Deist F.D, Winterton J. (2005). What is competence, *Human Resource Development International*, vol. 8 (1) pp. 27-46.
- McGror S.(2000). Measurement in a cross-cultural environment: survey translation issues, *Qualitative Market Research*, vol. 3 no. 2, pp. 74-81.
- NCREL & Matri Group (2019), enGauge 21st century skills: literacy in the digital age, <http://www.ncrel.org/engauge/skills/skills.htm> [26.09.2019].
- Nimon S. (2007). Generation Y and higher education: The “Other” Y2K. *Journal of Institutional Research* , No 13 (1), p. 24-41.
- Ogilvy D. (2007).Ogilvy on Advertising, Carlton Books 2007.
- Prahalad C.K., Hamel G. (1990). The Core Competence of the Corporation, “Harvard Business Review” 1990, May-June, [https://edisciplinas.usp.br/pluginfile.php/4391952/mod\\_resource/content/1/Prahalad%20Hamel.pdf](https://edisciplinas.usp.br/pluginfile.php/4391952/mod_resource/content/1/Prahalad%20Hamel.pdf) [25.09.2019].
- Ravitch D. (2009). 21st Century skills: An old familiar song. Washington, DC: Common Core 2009, <http://www.commoncore.org/pressrelasse.php> [26.09.2019].
- Rothwell W. J., Duboise D.D.** (2003). Competency-Based Human Resource Management, Davies-Black Publishing.
- Trilling B., Fadel Ch. (2009). 21st Century Skills: Learning for Life in Our Times, John Wiley&Sons, San Francisco.
- Young M. (2019). Ogilvy über Werbung im digitalen Zeitalter, Vahlens Verlag, München.