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*Assessment of Consumer Innovativeness – Comparative Research
among Consumers Aged 60+ and Generation Y Using the Example
of the Smartphone*

Ocena konsumenckiej innowacyjności – badanie porównawcze wśród konsumentów 60+ i pokolenia Y
na przykładzie telefonu typu smartfon

Keywords: consumer innovativeness; Generation Y; elderly consumers; consumers aged 60+; smart-phone

Słowa kluczowe: konsumencka innowacyjność; pokolenie Y; konsument-senior; konsumenci 60+; smartfon

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Introduction

The global trends of ageing and technological development are becoming a challenge in the field of contemporary marketing due to the fact that technological development has become permanent and significantly influences today's consumers, who, as a global population, are getting older [Badowska, 2017, p. 29]. These factors have to be taken into account by marketers when formulating companies' activities in the market, especially for new technological products. The latter have mainly been dedicated to young consumers, representing the so-called Generation Y. They are perceived as more open to technological novelties, acquiring them much

easier and faster, and thus characterized by a high level of consumer innovativeness. However, consumers aged 60+ will play a much more significant role in the global market due to the fact that the number of elderly people is increasing. They are commonly assessed as having little interest in innovative products, and particularly in technological products and services. It is assumed that this is a consequence of their low level of consumer innovativeness. As elsewhere around the world, the number of Polish people aged 60+ will rise dramatically [CSOP, 2014], and, therefore, it is necessary to deepen knowledge of the specificity of elderly people in the context of consumer innovativeness. There is a significant gap in the present awareness of this phenomenon, and, therefore, this research sheds light on the issue through an assessment of consumer innovativeness among consumers aged 60+ and Generation Y. The surveys were carried out among representatives of young and elderly consumers during the period of 2014–2016. To collect data, the paper-and-pencil interview (PAPI) technique was employed, and the smartphone was chosen by the author as the object of the study. To obtain results, the domain-specific innovativeness scale (DSI) was applied.

1. Ageing and consumer innovativeness in light of the literature review

Ageing is a universal process. Arensberg [2018, pp. 1–11] suggested that a “typical” older adult consumer does not exist, but some common traits, characteristics, and physical realities can be observed among this age group in comparison with younger populations. Carpenter and Yoon [2012, pp. 1–12] highlighted that understanding of both consumer decision-making and the ageing process is pivotal to maintaining consumer satisfaction and high decision quality across the life span. According to Mata and von Helversen [2015, pp. 416–427], ageing is associated with changes in cognitive abilities that may support processes in search tasks, and age differences have been reported in the pre-decisional search in consumer choice. Carpenter and Yoon [2012, pp. 1–12] pointed out that the ageing effect is influenced by, e.g. a consumer expertise factor, and for the elderly to overcome limitations imposed by cognitive decline related to age, consumer knowledge and experience can be useful. Huber and Watson [2014, pp. 16–25] suggested that older adults demonstrate an interest in technologies when it seems to be useful, and older adults’ decisions to purchase and use technologies are related to personal and social factors. Previously, age was defined as a significant factor moderating the process of acceptance and use of technology in the unified theory of acceptance and use of technology (UTAUT, UTAUT 2) proposed by Venkatesh et al. [2003, pp. 425–478; 2012, pp. 157–178]. For example, cognitive age was later tested together with technological anxiety and global consumer innovativeness in a model verifying the impact of these factors on the actual adoption of innovations [Cheron, Kohlbacher, 2018, pp. 1–16]. The issues of consumer innovativeness and age have been explored since the 1960s. Initially,

consumer innovativeness was understood as the degree to which a person accepts new ideas earlier than average members of a given social system [Rogers, Shoemaker, 1971]. This type of innovativeness began to be described as a hypothetical construct, defining it as natural or innate innovativeness observed at a higher level of abstraction [Bass, 1969, pp. 215–227] rather than realised or actualized innovativeness [Foxall, 1988, pp. 79–113; Foxall, 1995, pp. 269–288; Hirschman, 1980, pp. 283–295; Midgley, Dowling, 1993, pp. 611–625]. Thus, innate innovativeness is defined as a predisposition for buying new, various and different products or brands rather than sticking with previous choices and consumer behaviour patterns [Steenkamp et al., 1999, pp. 55–69]. Innate innovativeness is also described as a tendency to buy specific new products as soon as they appear on the market, and this is done earlier than in the case of majority of consumers purchasing in this segment [Foxall et al., 1998]. Furthermore, this specific trait stimulates innovative consumer behavior [Vandecasteele, Geuens, 2010, pp. 308–318]. What is more, consumer innovativeness is also considered at the level of novelty search [Hirschman, 1980, pp. 283–295; Venkatraman, Price, 1990, pp. 293–315] and in the context of the search for uniqueness [Burns, Krampf, 1991, pp. 32–35; Snyder, Fromkin, 1980], which both underlie innovative consumer behaviour. Moreover, consumer innovativeness is related to a specific domain – i.e. consumers who are likely to accept a new product in one category, and become innovators in this category, may turn out to be slower to take up another group of products [Gatignon, Robertson, 1991, pp. 316–348; Goldsmith, Goldsmith, 1996, pp. 1113–1114]. Finally, the concept of consumer innovativeness is related to the assessment of a level of consumer interest in innovation, the level of knowledge concerning innovations and the tendency to acquire particular goods or services [Truong, 2013, pp. 130–137]. Therefore, unless consumer innovativeness exists, consumer behaviour will merely be a series of reprocessed purchases in response to the static state of a product [Hirschman, 1980, pp. 283–295]. To measure the level of consumer innovativeness, a domain-specific innovativeness scale was developed (DSI) [see: Flynn, Goldsmith, 1993, pp. 209–222; Goldsmith, Hofacker, 1991, pp. 1005–1116; Szmigin, Carrigan, 2000, pp. 505–527]. The DSI scale allows measurement of consumer innovativeness towards a specific product within a specific domain of a product category. It suggests that the likely behaviour of individuals is based on responses to descriptions of specific situations depending on the context. It is more suitable for attempting to identify the likely specific purchasing behaviour and focuses primarily on the consumer and not the product.

2. Research methodology

The research aim is to identify and compare the level of consumer innovativeness among young and elderly consumers using the example of the smartphone. The problem is to find the answer to the following questions: What is the level of consumer

innovativeness of both consumer groups and how strongly do those studied generations differ from each other in this aspect? The main hypothesis suggests that: H. In the case of technological products, the level of consumer innovativeness is related to age, so that younger consumers show a higher level of consumer innovativeness than older consumers. The supportive hypotheses propose: H1. Younger men show a higher level of consumer innovativeness than older men. H2. Younger women show a higher level of consumer innovativeness than older women.

For this research goal, the term “elderly consumer” refers to individuals aged 60+, and “young consumer” describes people born between 1980 and 1999, the so-called Generation Y. The research was based and developed on Truong’s [2013] study. The construct “consumer innovativeness” covers the following four items adapted from Truong [2013]: an interest in technological novelties, visits to departments in stores/supermarkets with the studied product, a subjective assessment of the level of knowledge concerning the product in relation to people of the respondent’s circle, and a propensity to purchase the latest version of the product in the future. The statements of the questionnaire were adjusted to the studied object and local requirements (a product, a language, and a size of font). The adapted statements in the survey had a positive overtone for the respondents. The construct items were measured on a five-point Likert scale ranging from 1 – “strongly disagree” to 5 – “strongly agree”.

For targeting the smartphone users, the PAPI technique was used and pre-tested in pilots. The proper surveys were conducted among the elderly and the young at the turn of 2014–2015 and in 2016, respectively. In this study, a selective quota sampling procedure was employed (age and gender). To secure a sufficient number of respondents in both groups, the survey for the elderly people was carried out among the participants of seven Third Age Universities (TAU)¹ in the Pomeranian Voivodeship; and for the young people, it was conducted among the students of the University of Gdańsk during the period of February–May 2016. The specificities of the samples’ characteristics are presented in Table 1.

The process of comparative analysis of the studied respondent groups consisted of two stages. Firstly, descriptive statistical analysis was conducted to get to know the characteristics of those groups, and the level of consumer innovativeness was estimated. To measure the consumer innovativeness level, a modified DSI scale was applied. Within the adopted scale, respondents can obtain a minimum score of 4 and a maximum of 20. Within the scale, five result compartments of consumer innovativeness were determined correspondingly: the A compartment (4.0000–7.1999) for definitely non-innovative; B (7.2000–10.3999) for non-innovative; C (10.4000–13.5999) for neither non-innovative nor innovative; D (13.6000–16.7999) for innovative; and E (16.8000–20.0000) for definitely innovative. The results obtained for each person in all four statements were then summed up. At this stage, all the respondents whose

¹ TAU at the University of Gdańsk with branches in Pruszcz Gdański, Pelplin, and Kościerzyna; TAU in Gdynia at the Elderly Active Centre; TAU in Sopot; TAU in Malbork.

Table 1. Sample characteristics

Items	The elderly (60+ generation)		The young (Generation Y)	
No. of distributed questionnaires	720		210	
No. of returned questionnaires	524		152	
No. of targeted respondents	463		152	
No. of mobile phone users	425		149	
No. of smartphone users	104		124	
Gender	Female n = 80	Male n = 21; ND n = 3	Female n = 94	Male n = 30
Age	60–69	80	19–23	25
	70–79	23	24–27	92
	80+	1	28+	7

Source: Author's own study based on the original research (2014–2016).

answers to any of the four statements contained deficiencies or lacked an indication of gender were rejected. Finally, 123 of the young respondents and 69 of the elderly ones were selected. Then, the average results and standard deviations for those analysed groups (Y and 60+) and subgroups (elderly men and women, young men and women) were estimated.

3. Research results

The first item of the studied construct concerned an interest in technological novelties in the mobile phone sector. All the obtained results are shown in Table 2. Comparing both groups, among Generation Y, almost 35% of the respondents declared an interest in technological novelties, while among the elderly, less than 30% declared such an interest. What is more, almost 40% of the young people stated that they did not have an interest in technological novelties of the mobile phone sector, and almost 30% of the people aged 60+ did likewise. The second item of the studied construct referred to frequent visits to departments in stores/supermarkets with mobile phones. Assessing the collected evidence for both research groups, among Generation Y, 15.32% of respondents stated that they made frequent visits to shops with mobile phones, while among the elderly, such behavior was stated by only 7.69%. Moreover, 58.06% of the young respondents stated that they did not frequently visit shops with mobile phones, and among people aged 60+, 50% did likewise. The third item of the consumer innovativeness construct concerned a subjective assessment of the level of knowledge about smartphones among people of the respondent's circle. Collating the above evidence, among Generation Y, 21.77% of respondents declared knowing more about smartphones than the people in their circle, while only 11.54% of the elderly did likewise. On the other hand, 55.65% of the young people disagree that they know more about smartphones than the people in their environment, while this figure is only 42.31% for the elderly. The last item of the studied construct referred to propensity to purchase the latest version of a product in the future. Among the

representatives of Generation Y, 22.58% of the respondents stated that if they needed to use a smartphone, they would buy the latest version available for sale, and almost the same percentage of the elderly (22.12%) would do the same. However, 50% of the young consumers would not do so, and nor would 40.38% of the elderly.

Table 2. Structure of respondents' answers to the items of the construct "consumer innovativeness"

Scale	Generation					
	Y			60+		
Items of the scale	No. of answers	Percentage of answers	Percentage of cumulative answers	No. of answers	Percentage of answers	Percentage of cumulative answers
Statement	<i>Generally, I am interested in technological novelties in the mobile phone sector</i>					
Definitely disagree	21	16.94%	39.52%	8	7.69%	29.81%
Disagree	28	22.58%		23	22.12%	
Neither disagree nor agree	31	25.00%	25.00%	16	15.38%	15.38%
Agree	31	25.00%	34.68%	25	24.04%	29.81%
Definitely agree	12	9.68%		6	5.77%	
Lack of data	1	0.81%	0.01%	26	25.00%	25.00%
Total	124	100.00%	100.00%	104	100.00%	100.00%
Statement	<i>I frequently visit departments in stores/supermarkets with mobile phones</i>					
Definitely disagree	43	34.68%	58.06%	26	25.00%	50.00%
Disagree	29	23.39%		26	25.00%	
Neither disagree nor agree	32	25.81%	25.81%	13	12.50%	12.50%
Agree	12	9.68%	15.32%	4	3.85%	7.69%
Definitely agree	7	5.65%		4	3.85%	
Lack of data	1	0.81%	0.81%	31	29.81%	29.81%
Total	124	100.00%	100.00%	104	100.00%	100.00%
Statement	<i>I know more about smartphones than people around me</i>					
Definitely disagree	40	32.26%	55.65%	15	14.42%	42.31%
Disagree	29	23.39%		29	27.88%	
Neither disagree nor agree	27	21.77%	21.77%	18	17.31%	17.31%
Agree	17	13.71%	21.77%	10	9.62%	11.54%
Definitely agree	10	8.06%		2	1.92%	
Lack of data	1	0.81%	0.81%	30	28.85%	28.85%
Total	124	100.00%	100.00%	104	100.00%	100.00%
Statement	<i>If I needed to use a smartphone, I would buy the latest version available for sale</i>					
Definitely disagree	26	20.97%	50.81%	14	13.46%	40.38%
Disagree	37	29.84%		28	26.92%	
Neither disagree nor agree	32	25.81%	25.81%	12	11.54%	11.54%
Agree	22	17.74%	22.58%	17	16.35%	22.12%
Definitely agree	6	4.84%		6	5.77%	
Lack of data	1	0.81%	0.81%	27	25.96%	0.81%
Total	124	100.00%	100.00%	104	100.00%	100.00%

Source: Author's own study based on the original research (2014–2016).

Table 3. The estimated level of consumer innovativeness for the studied groups

Generation	Subgroup	No. of respondents	Average of results	SD	Minimal	Maximal	Type of innovativeness
					result (reference min = 4, max = 20)		
60+	Female	55	9.9818	2.8963	4	18	B - uninnovative
	Male	14	9.5714	3.7151	5	18	B - uninnovative
	Total	69	9.8985	3.0541	4	18	B - uninnovative
Y	Female	94	9.6063	4.0804	4	20	B - uninnovative
	Male	29	11.7931	3.5292	6	19	C - neither uninnovative nor innovative
	Total	123	10.1219	4.0520	4	20	B - uninnovative

The compartments: A (4.0000–7.1999) for definitely non-innovative; B (7.2000–10.3999) for non-innovative; C (10.4000–13.5999) for neither non-innovative nor innovative; D (13.6000–16.7999) for innovative; and E (16.8000–20.0000) for definitely innovative.

Source: Author's own study based on the original research (2014–2016).

The obtained results (Table 3) illustrate that the average level of consumer innovativeness among people aged 60+ was 9.8985. Among the elderly women, the studied indicator was higher and amounted to 9.9818, while among the elderly men, it was 9.5714. The examined average level of consumer innovativeness for the Generation Y respondents was 10.1219. In the group of young men, it was considerably higher, reaching the level of 11.7931, while among the young women, the level was 9.6063. When comparing the results of both age groups of respondents (60+ and Y), a higher level of the indicator was obtained for the young respondents (by 0.2234 points, or 0.2%). Importantly, a higher indicator was obtained among the older women than among the younger ones (by 0.3755, or 3.9%). In the case of men, the assessed level was much higher for the young male respondents than for the older ones (by 2.2227, or 23.2%).

Referring to the proposed scale and its compartments, three of the examined subgroups (elderly men, elderly women, and young women) were qualified to the category of people characterised by a low level of consumer innovativeness and belonging to compartment B – non-innovative. Only a subgroup of the young men obtained this result, assigning these respondents to the C compartment – neither non-innovative nor innovative.

Discussion and conclusions

According to the collected data, some conclusions can be drawn in brief. Firstly, twice as often as the elderly consumers, the surveyed youngsters expressed positive declarations for the following issues: an interest in technological novelties of the mobile phone sector, frequent visits to departments in stores/supermarkets with mobile phones, and a subjective assessment of the level of knowledge about smartphones

in relation to people of the respondent's circle. Thus, this young group manifests a stronger tendency towards a higher level of consumer innovativeness than the elderly respondents. On the other hand, in the case of the above-mentioned components of the construct, it is noticeable that the elderly respondents less frequently indicated negative declarations than the younger consumers (by 10pp, 8pp, 13pp). Secondly, among the declarations for the fourth item of the construct that referred to propensity to purchase the latest version of a smartphone in the future, both studied groups pointed out positive declarations at almost the same level, and the elderly consumers selected the negative declarations less frequently than the younger ones.

Moreover, the general level of consumer innovativeness appears to be higher for the surveyed young consumers than for the elderly ones. Therefore, in the case of the tested product, the smartphone, the level of consumer innovativeness seems to be related to age, which positively confirms the proposed main hypothesis. Also, the supportive hypothesis H1 was verified positively, so that in the case of a technological product, the smartphone, the younger men showed a higher level of consumer innovativeness than the older men. Surprisingly, the H2 hypothesis has been verified negatively. According to the results, the older women showed a higher level of consumer innovativeness than the younger ones. Thus, although the literature suggests that consumer innovativeness seems to be an individual and innate trait, age may also influence this phenomenon. Such an image may result from the fact that the young consumers seem to be more likely to choose radical approaches and, while still being inexperienced consumers, prefer unambiguous decisions. On the other hand, the older people, based on long-term consumer experience, assess the phenomenon with greater life distance.

The obtained findings may have some marketing implications. Consumer innovativeness seems to be a correct predictor and useful for comparative research in consumer behaviour in the aspect of product novelties. As the conducted analysis suggests, consumer innovativeness can be employed for a segmentation process. In both age groups, the application of this determinant emerged in at least two specific market segments, which can be defined at least as: innovative, non-innovative and others. These findings can be particularly useful for drawing up marketing strategies for innovative technological products, which are becoming more and more important for consumers of all ages.

Finally, concluding the deliberations, it should be emphasized that with regard to the sampling method employed for the study and the size of the examined group, the received applications should not be generalised to the entire Generation Y and 60+ segments in Poland. The results suggest that the verified characteristics of the groups emphasise the observed direction of their types of behaviour. However, generalisation of the obtained data requires wider and more in-depth studies using representative methods, which will constitute the author's future work.

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Ocena konsumenckiej innowacyjności – badanie porównawcze wśród konsumentów 60+ i pokolenia Y na przykładzie telefonu typu smartfon

Celem artykułu było zaprezentowanie wyników badań własnych dotyczących porównania konsumenckiej innowacyjności wśród młodych i starszych konsumentów na przykładzie smartfonu. Aby zweryfikować cel badań, w latach 2014–2016 przeprowadzono sondaż wśród przedstawicieli pokolenia Y i konsumentów w wieku 60+ przy zastosowaniu techniki PAPI. Do uzyskania wyników zastosowano opisową analizę statystyczną i skalę pomiaru innowacyjności DSI. Wyniki pozwalają wnioskować, że poziom innowacyjności konsumenckiej jest wyższy dla badanych młodych konsumentów niż konsumentów-seniorów. Mimo że innowacyjność konsumencka wydaje się cechą indywidualną i wrodzoną, to jednak wiek może wpływać na to zjawisko. Wyniki pokazują, że konstrukt w postaci innowacyjności konsumenckiej może być stosowany w procesie segmentacji i okazuje się przydatny do opracowania strategii marketingowych innowacyjnych produktów technologicznych, które stają się coraz ważniejsze w koszyku konsumentów w każdym wieku.

Assessment of Consumer Innovativeness – Comparative Research among Consumers Aged 60+ and Generation Y Using the Example of the Smartphone

The aim of this paper was to present the results of the original research comparing consumer innovativeness among young and elderly consumers using the example of the smartphone. To verify the research objective, the surveys were carried out among the representatives of Generation Y and consumers aged 60+ during the period of 2014–2016, and the PAPI technique was employed. To obtain outcomes, descriptive statistical analysis and the domain-specific innovativeness scale (DSI) were applied. The results suggest that the level of consumer innovativeness appears to be higher for the surveyed young consumers than for the elderly ones. Thus, even though consumer innovativeness seems to be an individual and innate trait, age may influence this phenomenon. The findings show that the consumer innovativeness construct can be applied for a segmentation process and appears to be useful for drawing up marketing strategies for innovative technological products, which are becoming more and more important for consumers of all ages.