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Visual Preference of Infographics on Covid-19

Romella M. Tuppal[1(CA)], Angelito E. Alvarado[2] Stephanie Shianne F. Acob[3], Althea L. Adriosula[4], Ivi Krizzle D. Agustin[5], Rowena Mae N. Agustin[6], Rioselle D. Alejandro[7]

[1(CA)]Assistant Professor II, Isabela State University, College of Nursing, Echague, Isabela, Philippines; allemorlapput@gmail.com (Corresponding Author)

[2]Research Coordinator, Isabela State University, College of Nursing, Echague, Isabela, Philippines; angelito.e.alvarado@isu.edu.ph

[3]Nursing Student, Isabela State University, College of Nursing, Echague, Isabela, Philippines; stephanieshiannea@gmail.com

[4]Nursing Student, Isabela State University, College of Nursing, Echague, Isabela, Philippines; altheaadriosula59@gmail.com

[5]Nursing Student, Isabela State University, College of Nursing, Echague, Isabela, Philippines; ividagustin@gmail.com

[6]Nursing Student, Isabela State University, College of Nursing, Echague, Isabela, Philippines; agustinathena23@gmail.com

[7]Nursing Student, Isabela State University, College of Nursing, Echague, Isabela, Philippines; riosellealejandro11@gmail.com

ABSTRACT

Visual communication has become a trend in health education during the COVID-19 pandemic specially the use of infographics. The purpose of this study is to determine the visual preference of the respondents on COVID-19 infographics with different language used among the residents of Ricarte Norte, Diffun, Quirino. Descriptive-correlational study was conducted among selected residents at Purok 4, Ricarte Norte, Diffun, Quirino through non-probability convenience sampling technique. Questionnaire consist of 2 parts. The first part focused on the profile of the respondents. On the other hand, the second part concentrated on the respondents' perception regarding the visual preference of infographics on Covid-19 in terms of different designs and language used using the Likert scale. Data were gathered through face-to-face. The result revealed that the over-all visual preference of the respondents on COVID-19 infographics was "Fairly Preferred" but specifically, each group of the respondents exhibit unique and different visual preference on the COVID-19 infographics. The study revealed further that there was no significant difference as to the perception made by the respondents on their visual preference on the COVID-19 infographics and there exists a significant relationship between the assessed visual preference of the respondents on COVID-19 infographics with the used of the different language domain with their profile variables.

Keywords: visual preference; infographics; covid-19

INTRODUCTION

In the late months of 2019, the World Health Organization officially announced the existence of the new coronavirus disease which then became a COVID-19 pandemic. There is limited information being released in the beginning due to ongoing studies. Many information even misleads the public such as the assumption that corona virus originated at Wuhan, China because the Chinese people have the culture of eating exotic animals. In general, the public is deficient in their knowledge about COVID-19 and how this virus was being acquired and transmitted from one patient to another and lacked feelings of personal relevancy toward health and safety. This has created a need for effective message construction from health and technology resources groups. While there are many methods and media through which medical team can convey information, the incorporation of visual communications is increasing in many aspects of society. However, there is a shortage of research performed in the general area of visual communications. (1) Specifically, in health education, there is a call for an expansion of visual communications used in the discipline and additional research on the impact visual communications has on health and medical education efforts. (2)

The global population continues to grow and is projected to reach 9 billion people by the year 2050. (3) Therefore, an impending need existed for all citizens to be well-informed about public health and safety.(4) The

Philippines lacked individuals who can look at the issues facing public health and safety holistically and adeptly proposed a course of action to solve these problems in a way that would benefit our society. To gain this understanding of health concepts, literacy in the subject of public health and safety must be improved. [5] Public health and safety literacy revolved around the ability to "think critically and make value judgments about the impact of health issues as a physical, economic and environmental activity and the concurrent societal and health pressures that resulted from those judgments". They also noted that a public health and safety literate person should be able to analyze and evaluate the acquisition and transmission of a specific disease to individuals and society stemming from health and medical initiatives. [6] Visuals and illustrations has been used for communicating multifaceted ideas since 1786 when William Playfair developed the line graph and bar chart. As technology has advanced greatly in the many centuries since then, digital media have combined with traditional communication formats to create new forms of visual communications. [7] Visual design elements engage a viewer's attention more than the subject matter. [8] Majority of researches conducted on the subject of visuals used in learning have highlighted the impact that visuals have on the information recall, determination, and success of learners. [9] The number of the reported COVID-19 cases in the Philippines reached 1,513,396 cases with 26,786 deaths. This number is very alarming considering that many health education has been conducted for public awareness and to prevent the transmission of the disease. The barangay Ricarte Norte Diffun Quirino have varities of ethnic groups with different language modalities and this fsctor including the literacy level of the residents contributes to the public understanding of the health education about COVID-19. Many health education programs about this pandemic uses English as a mode of instruction and given that not all the Filipinos speaks and understand English, the understanding for the relayed information is hindered.

Visuals have demonstrated the ability to increase individual interest in learning because pictures encourage the cognitive process. Visual communications were not only beneficial to the field of education, but also can aide professionals of health and medical science in their efforts to share research and complex ideas. There is a place for the incorporation of design elements and visual communication in the realm of health and medical science communication. If popularizing health and medical science is treated in the traditional way of being a linear one-way communication between two defined communities—the scientific community and the general public—it becomes a mere translation or a simplified description of scientific knowledge. He concluded visual communications should be integrated as whole communication efforts in themselves, rather than acting as subsidiary informational pieces to other forms of communication. The author also stated target audience identification is vital to effective communication through visuals. [10] The use of visuals in the communication of health and medical science can help scientists and medical team visualize ideas while having the ability to share illustrated versions of their cognitive processes. They also stated visuals can precisely present data by displaying information and data in the most diverse visual configurations, from tables and graphs to diagrams, trees, maps, images, drawings, photographs, screenshots, videos, or computer visualizations. [11]

Infographic as a form of communication created using graphic design techniques that incorporates graphs, charts, icons, ornamental fonts, and diagrams to represent information and data, resulting in a narrative consisting of illustrations. Infographics assist in improved visualization of information.is referred to as mechanisms by which a person perceives, interprets, communicates, and uses visual information..[12] The goal of visualization is to convey information more effectively by graphical means.[13] An effective visualization can decrease the time it takes to understand data and statistics, find correlations, and attain information.[14] Infographics can be effective presentation formats in research because the combination of graphics and text encourages individual understanding of complex information. When presenting science-related topics, graphic depictions, such as infographics, have become important means for improving comprehension. [15]

Although overwhelming COVID-19 related information, is being posted and announced in social media, it is also necessary to note and consider the areas which have lesser access to internet and COVID-19 related information as they also share the same risk of getting infected with the virus.

Considering this situation, dissemination of COVID-19 related information through specific visualization such as infographics will help in overcoming the problem of poorly informed public in relation to poor access to internet and vital information. The aspect of literacy and language barrier in some areas is also a subject of further discussion in educating and informing the public as not every area in the country understands English language which is majorly used in disseminating information about COVID-19 in social media.

In line with this specific situation, this study aimed to analyzed the visual preferenced of infographics on COVID-19. In globalize community we have nowadays, it was essential for an individual to have enough, accurate and complete knowledge regarding the health issues facing our society, specifically the current situation on COVID-19. This study revealed the current problems of specific locality which resulted to poor acquisition of public health and safety competence of the respondents, therefore the study also aimed to assess the respondent's visual preference of COVID-19 infographics to provide them learning material adjusted to their preference and needs.

METHODS

Design

The researchers used quantitative research, under descripticve-correlational method of research design. The gathered data had assessed the visual preference of infographics on Covid-19 with different language used of selected barangay of Ricarte Norte, Diffun, Quirino. This research was conducted in Barangay Ricarte Norte, Diffun, Quirino due to the increase in reported COVID-19 cases in the area.

The said barangay is composed of six (6) puroks (division in the branggay). The respondents of the study were the residents of Brgy. Ricarte Norte, Diffun, Quirino. They were gathered from Purok 4 of the said location wher most of the active cases of COVID-19 is reported. Using the Slovin's Formula, 99 residents of Purok4 were randomly selected as respondents of the study.

This study used convenient sampling technique since the information or the data needed in the study was very much accessible and convenient for the researchers considering the location or venue of the study. Convenience sampling was a non-probability sampling technique where subjects were selected because of their convenient accessibility and proximity to the researchers.

Data Collection Procedure

The researchers sought approval from the barangay officials of Brgy. Ricarte Norte, Diffun, Quirino to conduct the study. The researchers administered all tests and conducted observations during the permitted schedule given to them. The respondents were guided and assisted by the researchers while answering the survey questionnaire. The data gathering procedure was carried out for two weeks. All observations were taken down in notes accordingly for documentation purposes. Also, the researchers conducted various library researches in their respective school, wherein books, websites and other related studies and literatures were used as substantial sources and as secondary data collection to enrich the study. Questionnaire was validated in school accordingly. The researchers explored the World Wide Web through internet to acquire further data relevant to the study. Lastly, the data gathered was tabulated and was treated with appropriate statistical tool.

Statistical Treatment of Data

To determine the profile of the respondents as to age, sex, civil status and educational attainment frequency counts and percentage was used. To determine the respondents' perception on their visual preference of COVID-19 inforgraphics with a different language domains used, weighted mean was used.

To analyse the weighted mean of responses of the respondents with respect to their perception on visual preference on COVID-19 infographics, the 5-point Likert Scale and its equivalent mean range below was used:

Table 1. Likert scale

Scale	Mean range	Adjectival interpretation
5	4.80-5.00	Highly preferred
4	3.80-4.79	Moderately preferred
3	2.80-3.79	Fairly preferred
2	1.80-2.79	Slightly preferred
1	1.00-1.79	Not preferred

To determine if there is significant difference on the perception of the respondents on their visual preference on COVID-19 infographics, One-way Analysis of Variance (ANOVA) F-test statistics was used. To determine if there is significant relationship between the perception of the respondents on their visual preference on COVID-19 infographics and their profile variables, Chi-square test was used.

RESULTS

Profile of the Respondents

Table 2. Frequency and percentage of the profile of the respondents

Profile of the Respondents	Frequency	Percentage
Age		
Adolescent (12-19 years old)	24	24.2%
Young Adult (20-39 years old)	31	31.3%
Middel Age Adult (40-59 years old)	35	35.4%
Older Adult/ Senior Citizen (60 years old and above)	9	9.1%
Sex		
Female	62	62.6%
Male	37	37.4%
Civil Status		
Single	50	50.5%
Married	41	41.4%
Widowed	8	8.1%
Educational Attainment		
Elementary Graduate	33	33.3%
Highschool Graduate	39	39.4%
Vocational Graduate	3	3%
Bachelor's Degree Graduate	19	19.2%
Post Graduate Degree	5	5.1%

It was displayed from table 2 the distribution of the respondents profile as to their age group, sex, civil status, and educational attainment. From the table, there were 24 or 24.2 percent adolescent, 31 or 31.3 percent for young adult, 35 or 35.4 percent for middle age adult and 9 or 9.1 percent for older adult/senior citizen. Therefore, majority of the respondents belong to age group of middle age adult.

In terms of sex, it is clear from the table that there are 62 or 62.6 percent female, while, there are 37 or 37.4 percent male. Hence, majority of the respondents in this study were female.

With regards to civil status it was displayed from table 2 that thereare 50 or 50.5 percent single respondents, while 41 or 41.4 percent and 8 or 8.1 percent for married and widowed, respectively. Conclusively, majority of the respondents in this study were single.

As to educational attainment, it is clear that there are 33 or 33.3 percent elementary graduate from the respondents, while, 39 or 39.4 percent are high school graduate, 3 or 3 percent are vocational graduate, 19 or 19.2 percent are bachelor's degree graduate and 5 or 5.1 percent for post graduate degree. Hence, majority of the respondents had an educational attainment of high school graduate.

Visual Preference of the Respondents on COVID-19 Infographics

The visual preference of the respondents on COVID-19 infographics with different language domain used were presentedin table 3. As shown in the table 3, the perceptual mean of the adolescent age group for COVID-19 Infographics (English) and COVID-19 Infographics (Filipino) was 3.43 and 3.47, respectively, both had an adjectival interpretation of Fairly Preferred; for the Young Adult, their perceptual mean for COVID-19 Infographics (English) and COVID-19 Infographics (Filipino) was 3.54 and 3.51, respectively, with both had an adjectival interpretation of Fairly Preferred. The perceptual mean of the Middle Age Adult for COVID-19 Infographics (English) and COVID-19 Infographics (Filipino) was 3.40 and 3.56, respectively, with their corresponding with both had an adjectival interpretation of Fairly Preferred, while, for Older Adult/Senior had their perceptual mean of 3.11 and 3.18 with both had an adjectival interpretation of Fairly Preferred.

The overall perceptual mean of the respondents as to the COVID-19 Infographics for English language domain and Filipino language domain was 3.37 and 3.43, respectively, with both having an adjectival interpretation of Fairly Preferred.

Table 3. Respondents Perception on their Visual Preference on COVID-19 Infographics with Different Language Domains Used

COVID-19 Infographics	Adolescent		Young Adult		Middle Age Adult		Older Adult		OVERALL MEAN	
(English)	Mean	AI	Mean	AI	Mean	AI	Mean	AI	Mean	AI
1A	4.54	MP	3.94	MP	3.69	FP	3.00	FP	3.79	FP
2A	4.54	MP	4.68	MP	4.74	MP	4.56	MP	4.63	MP
3A	2.54	SP	2.87	FP	3.51	FP	3.67	FP	3.15	FP
4A	4.04	MP	3.68	FP	3.49	FP	3.11	FP	3.58	FP
5A	3.71	FP	4.32	MP	4.23	MP	4.33	MP	4.15	MP
6A	2.38	SP	2.48	SP	2.14	SP	1.11	NP	2.03	SP
7A	1.54	NP	2.16	SP	2.11	SP	1.00	NP	1.70	NP
8A	4.17	MP	4.16	MP	3.26	FP	4.11	MP	3.93	MP
TOTAL	3.43	FP	3.54	FP	3.40	FP	3.11	FP	3.37	FP
COVID-19 Infographics	Adolescent		Young Adult		Middle Age Adult		Older Adult		OVERALL MEAN	
(Filipino)	Mean	AI	Mean	AI	Mean	AI	Mean	AI	Mean	AI
1B	4.67	MP	4.03	MP	3.71	FP	3.00	FP	3.85	MP
2B	4.42	MP	4.90	HP	4.80	HP	4.67	MP	4.70	MP
3B	2.62	SP	2.97	FP	3.51	FP	3.67	FP	3.19	FP
4B	4.04	MP	3.68	FP	3.57	FP	3.44	FP	3.68	FP
5B	3.75	FP	3.35	FP	4.26	MP	4.22	MP	3.90	MP
6B	2.42	SP	2.58	SP	2.20	SP	1.11	NP	2.08	SP
7B	1.67	NP	2.29	SP	2.17	SP	1.00	NP	1.78	NP
8B	4.15	MP	4.26	MP	4.29	MP	4.33	MP	4.26	MP
TOTAL	3.47	FP	3.51	FP	3.56	FP	3.18	FP	3.43	FP

LEGEND: AI – Adjectival Interpretation; HP – Highly Preferred; MP – Moderately Preferred; FP – Fairly Preferred; SP – Slightly Preferred; NP – Not Preferred

With the following results, it is shown that among the presented infographics, the adolescent age group preferred 1B infographic with 4.67 mean while the rest of the age group including young adult, middle age adult, and older adult preferred 2B infographic with mean of 4.90, 4.80, and 4.67 respectively.

Below are the infogpahics that are most preferred by the respondents.

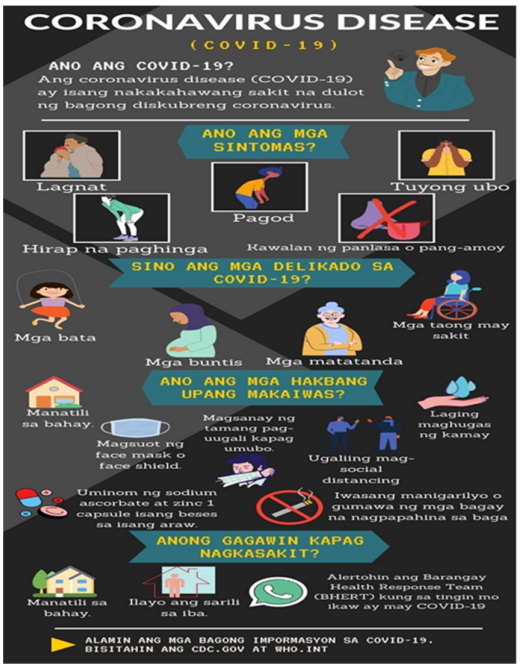

Figure 1. 1B COVID-19 Infographics

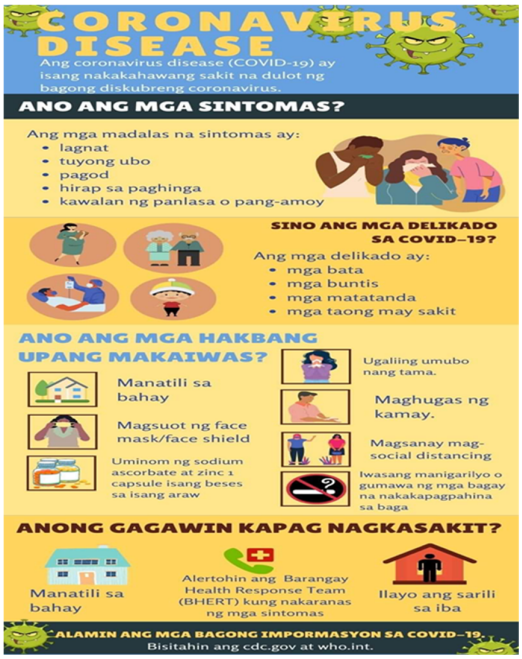

Figure 2. 2B COVID 19 Infographics

Relationship and Diference Between the Respondents' Perception of COVID-19 Infographics with Different Lanuage Domain Used

Table 4. Significant difference on the assessment made by the respondents as to their visual preference on COVID – 19 infographicswith different language domains used

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Meam of Squares (MS)	F-Value	F-Critical Value	Decision	Remarks
Between groups	1.42	3	0.47	0.41	2.76	Accept H_O	Not Significant
Within grops	68.35	60	1.14				
Total	69.77	63					

Table 4 presented the result of the analysis of variance on the significant difference in the perception made by the respondents on their visual preference on COVID-19 Infographics with different language domains used. The table showed that the sum of the squares between groups and within groups was 1.42 and 68.35 with total of 69.77, respectively with their respective degrees of freedom of 3 and 60 leading to a total degrees of freedom of 44. The mean of square between groups was 0.47 and within groups was 1.14. The F-value was 0.41, while, the F-critical value was 2.76. Since, the F-value was lesser than the F-critical value the null hypothesis was accepted.

Therefore, there exists no significant difference in the perception made by the respondents as to their visual preference on COVID-19 infographics with different language domains used. The English language and Filipino language doesn't affect the respondents' preference in visual COVID-19 infographics. This result affrirms the analysis of the Philippines Redcat, "Even though not all Filipinos can communicate with each other using their own national language, the wide majority of the population speaks great English (maybe with the exception of the older generation working on the farms). If you listen to Filipinos when they are talking to each other, they would use at least 20-30% English words and the rest is a mix of Filipino and their own dialect".

Table 5. Significant relationship between the respondents visual preference on COVID-19 infographics with different language domains used when they are grouped according to their profile variables

Profile	Chi square (X^2) value	Degrees of Freedom	Critical Value (at 0.05 Significance Level)	Analysis	Decisions	Remarks
Age	111.34	6	10.64	$X^2 > 0.05$	Reject H_o	Significant
Sex	64.82	2	5.99	$X^2 > 0.05$	Reject H_o	Significant
Civil status	77.82	4	7.78	$X^2 > 0.05$	Reject H_o	Significant
Educational attainment	129.09	8	15.51	$X^2 > 0.05$	Reject H_o	Significant

Table 5 displayed the significant relationship between the respondents' visual preference on COVID 19 Infographics with the different language domains used and the profile variables. The chi-square value of 111.34 for age, 64.82 for sex, 77.82 for civil status and 129.90 for educational attainment was greater than their respective critical values of 10.64, 5.99, 7.78 and 15.51 with degrees of freedom of 6, 2, 4, and 8, respectively at 0.05 significance level. Since the chi- square values are greater than their critical values, the null hypothesis was rejected. This means that the profile variables of the respondents had significant relationship with their visual preference on COVID-19 Infographics.

Therefore, there exists no significant difference in the perception made by the respondents as to their visual preference on COVID-19 infographics with different language domains used. The English language and Filipino language doesn't affect the respondents' preference in visual COVID-19 infographics. This result affrirms the analysis of the Philippines Redcat, "Even though not all Filipinos can communicate with each other using their own national language, the wide majority of the population speaks great English (maybe with the exception of the older generation working on the farms). If you listen to Filipinos when they are talking to each other, they would use at least 20-30% English words and the rest is a mix of Filipino and their own dialect".

DISCUSSION

The distribution of the respondents profile In terms of age, majority of the respondents belong to age group of middle age adult with age range of 40-59 years old.. With regards to sex, majority of the respondents in this study were femal. In the Civil Status, majority of the respondents in this study were single; as to educational attainment, respondents who had an educational attainment of highschool graduate have the highest number, followed by Elementary graduate, next is the Bachelor's degree, then Post Graduate degree, and Vocational graduate.

For significant difference on the Perception made by the repondents as to their Visual Preference on Covid 19 Infographics with Different Language domains used shows that there exist no significant difference. This is because Filipino is the national language in the Philippines and studies show that approximately 14 million Filipinos speaks English while the rest speaks little English. Most Filipinos even speak "Taglish" or mixed Filipino/Tagalog words and English words therefore English language is not foreign for Filipino people. The infographics on this study was presented in Filipino language and English language and the result of this study showed that language domain doesn't influence the respondent's visual preference of COVID-19 infographics. It is note taking that majority of the respondents' profile of educational attainment is high school graduate and English language together with Filipino language are part of primary and secondary education curriculum therefore this literacy level can ensure the respondents' understanding of basic English and Filipino terms which is used in the COVID-19 infographics with English domain used.

For the profile variables of the respondents can influenced the respondents' visual preferences on COVID-19 infographics with the different language domains use therein. Different personal preferences on various elements of infographics such as language, color, layout, and design is acknowledged to be present. The

diversities in the profile variables of the respondents' used in this study have particular influence on their perception of visual preference on COVID-19 infographics presented to them. In English and Filipino language domain used, those that have a higher educational attainment have a higher understanding of complex English terms while those who have a lower educational attainment are most likely to prefer Filipino which for them is more understandable.

CONCLUSION

In the light of the findings of the study, the following conclusions are drawn:

Majority of the respondents belong to the age bracket 40-59. There is a big difference between the number of females (62 respondents) over the male (37 respondents). Among the educational attainment, majority of the respondents are highschool graduate, and in terms of civil status, majority of the respondents are single.

All of the respondents preferred Filipino COVID-19 Infographics.

There exists no significant difference in the perception made by the respondents as to their visual preference on COVID-19 infographics with different language domains used.

The profile of the respondents can influenced the respondents' visual preferences on COVID-19 infographics with the different language domains use therein.

1. The proposed other infographics learning materials can be adopted by the barangay and be subject for policy discussion and barangay legislation for its full implementation.
2. Information dissemination about COVID-19 with the use of appropriate infographics must establish and develop to further educate the residents of the barangay. The higher the information the resident acquire about COVID-19 the higher the prevention measures can be personally developed by the residents themselves.
3. Appropriate COVID-19 infographics should be developed in conjunction with the age group and dialects known to the reader for better understanding of its content.

REFERENCES

1. Kenney K. Visual communication research design. New York, NY: Routledge; 2020.
2. Pennington K. Knowledge and perceptions of visual communications: A closer look at experiential learning integrations. Journal of Agricultural Education. 2019;56(2):27-42. doi: 10.5032/jae.2015.02027.
3. Godfray H. Food security: The challenge of feeding 9 billion people. Science. 2018;327(5967):812-818. doi: 10.1126/science.1185383.
4. Lewis LM. A comparative study of medical and health literacy of urban vs. rural third and fourth graders. Stillwater, Oklahoma: Oklahoma State University; 2020.
5. Frick M. Medical literacy: A framework for communicating to the public sector. Journal of Applied Communications. 2017;5(2):1-9. doi: 10.4148/1051-0834.1501.
6. Powell D. Health literacy: Clarifying a vision for practical application. Journal of Health Education. 2018;45(1):85-98. doi: 10.5032/jae.2008.01085.
7. Francis K. The use of graphics to communicate findings of longitudinal data in design-based research. Journal of Information Technology Education Research. 2019.
8. Christ L. The nature of news revisited: The roles of affect, schemas, and cognition. In L. Donohew, S. Finn, & W. Christ (Eds.), Communication, social cognition, and affect, (pp. 195-218). Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.; 2018.
9. Aisami RS. Learning styles and visual literacy for learning and performance. Social and Behavioral Science. 2020:176:538-545. doi: 10.1016/j.sbspro.2015.01.508.
10. Estrada F. Improving visual communication of science through the incorporation of graphic design theories and practices into science communication. Science Communication. 2020;37(1):140-148. doi: 10.1177/1075547014562914
11. Pinto M. Understanding the visual communication of science and technology in translation: Initial results of an e-survey. Journal of Translator Education and Translation Studies. 2018.
12. Matrix S. Teaching with infographics: Practicing new digital competencies and visual literacies. Journal of Pedagogic Development. 2018.
13. Siricharoen WV. Infographics: The new communication tools in digital age. International Conference on E-Technologies and Business on the Web, Bangkok, Thailand. 2018:169-174.
14. Aguilar D. Visual analytics to support e-learning. Advances in Learning Processes. 2019:207-228. doi: 10.5772/7932.
15. Frankel F. Visual strategies: A practical guide to graphics for scientists and engineers. New Haven, CT: Yale University Press. 2019.