Hacettepe University *Faculty of Education*
Computer Education and Instructional Technology

A New Approach to Equip Students with Visual Literacy Skills:

Use of Infographics in Education

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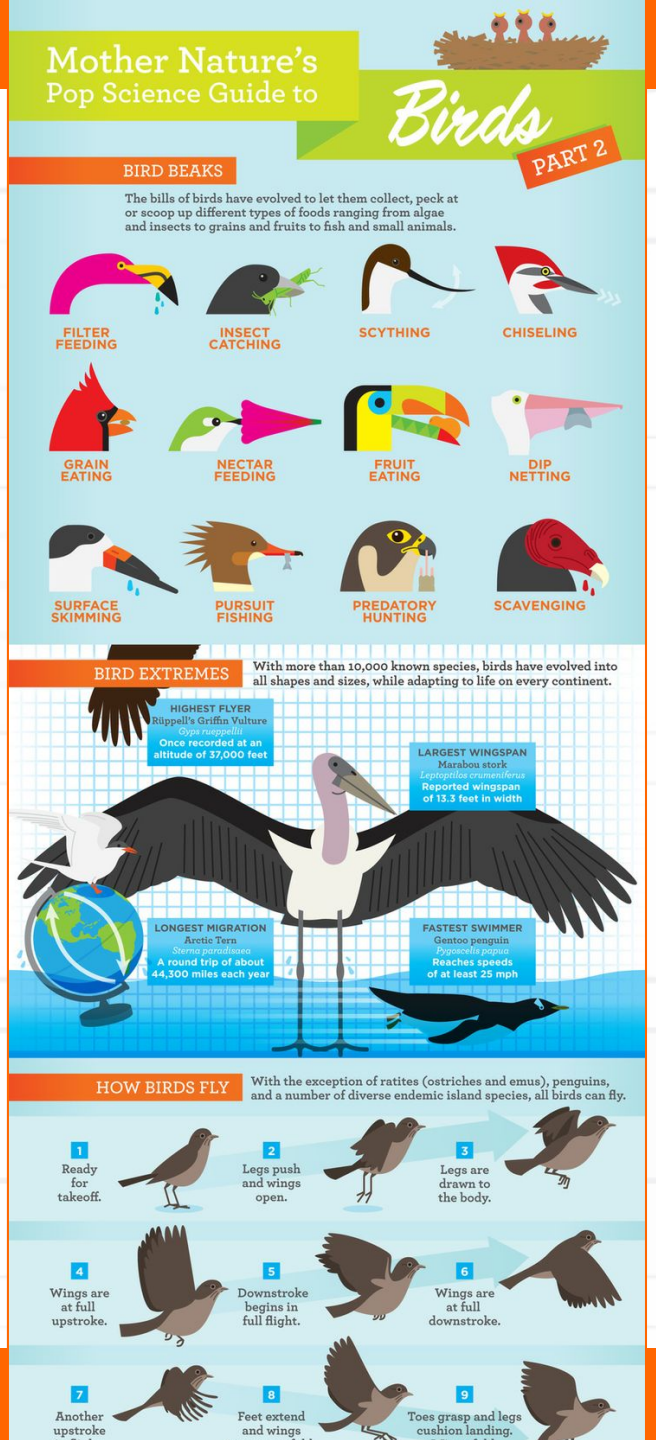
Aim of the Study

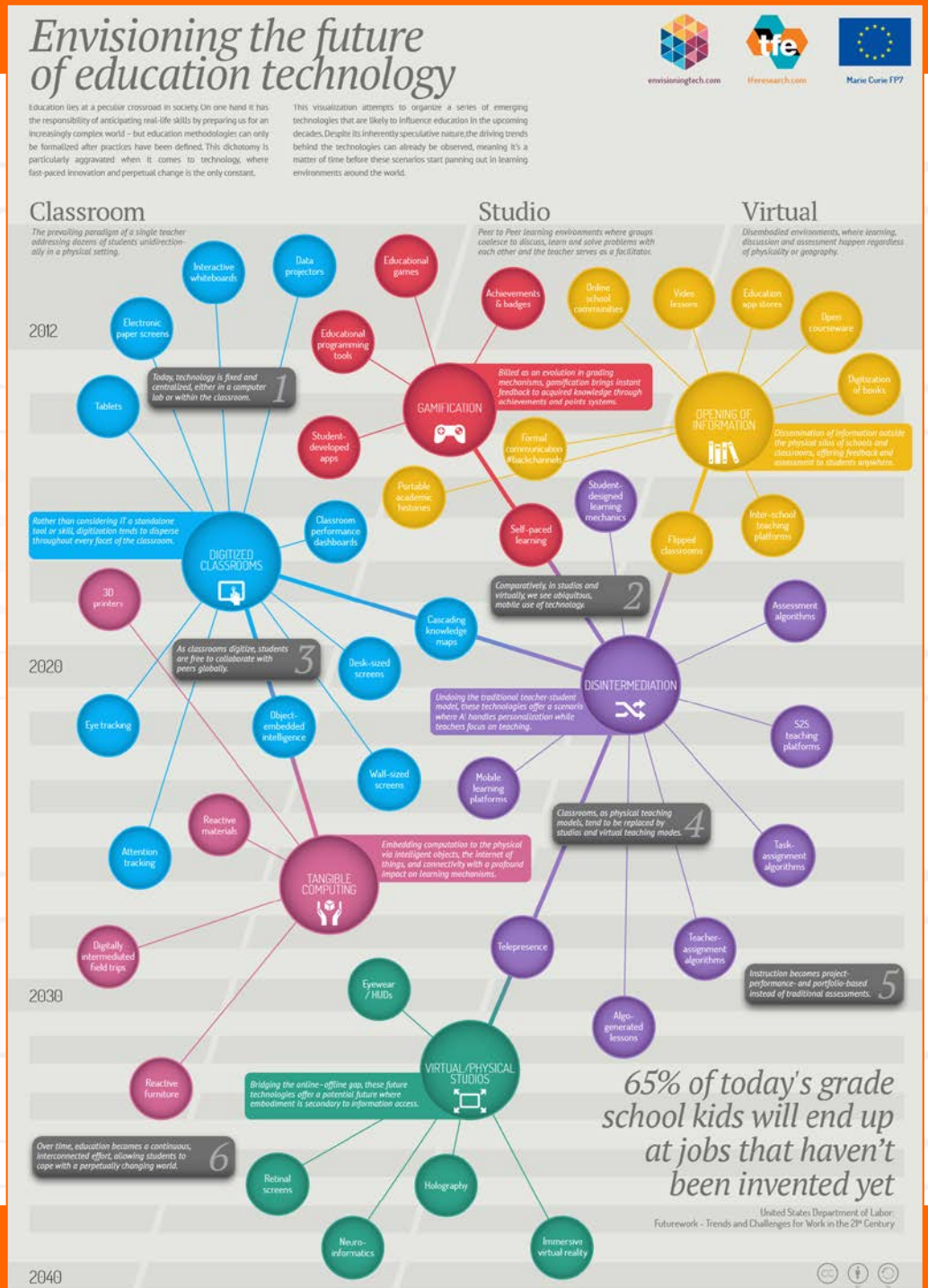
…how to use infographics as a learning tool was discussed in order to equip students with visual literacy skills.

What is & **Why** Infographics?



Infographic or Information graphic is…

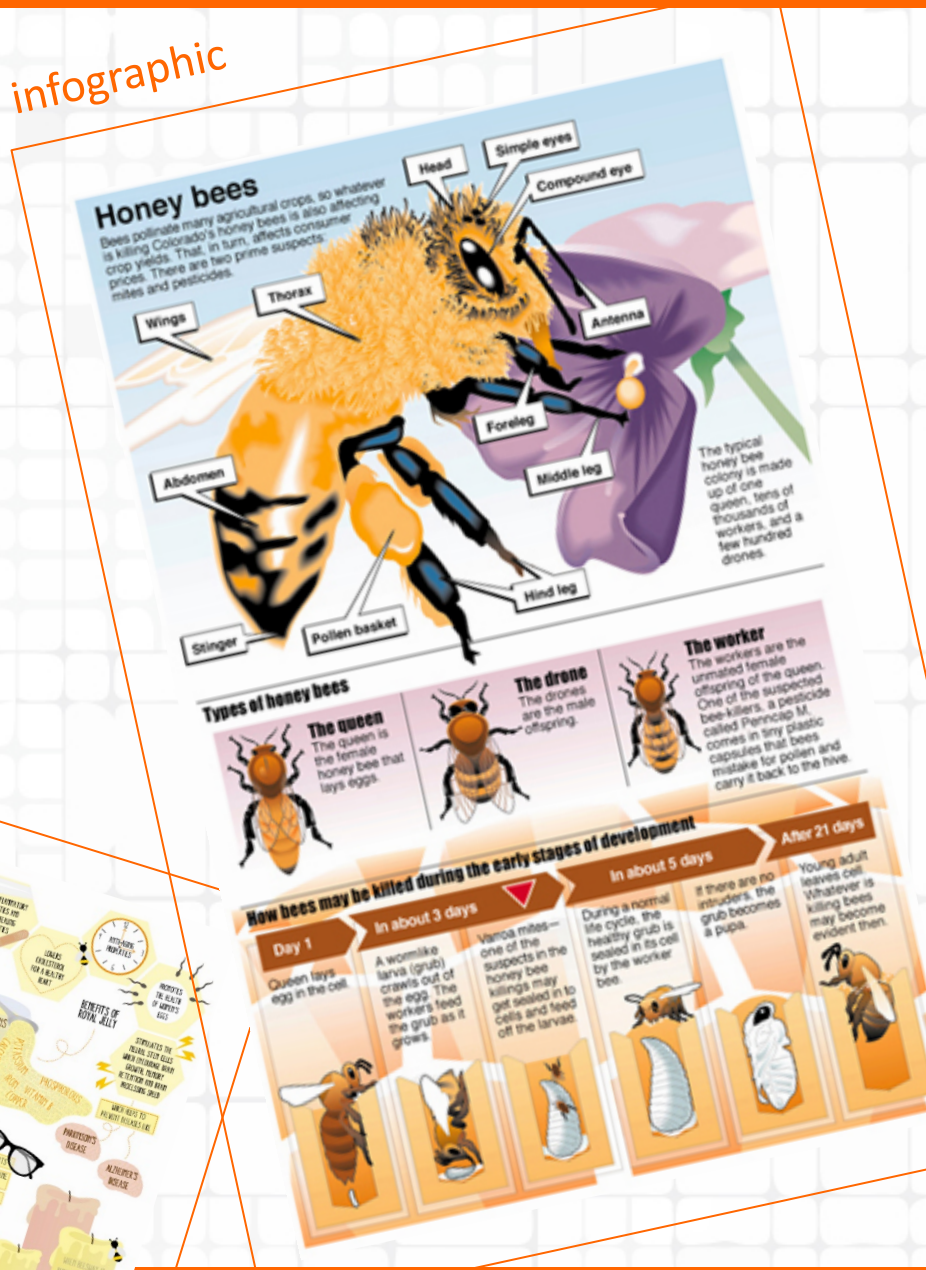
…the visual display of any data or information aiming to present the information in a **quick** and **clear** way.



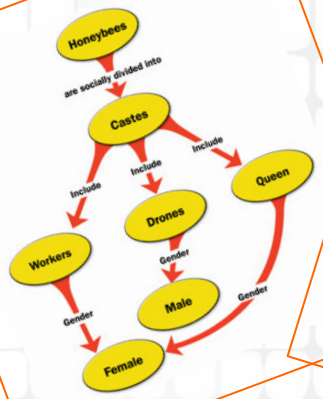
Infographic is…

… visualization of data or ideas that tries to convey **complex information** to an audience in a manner that can be **quickly consumed** and **easily understood**[5].

infographic



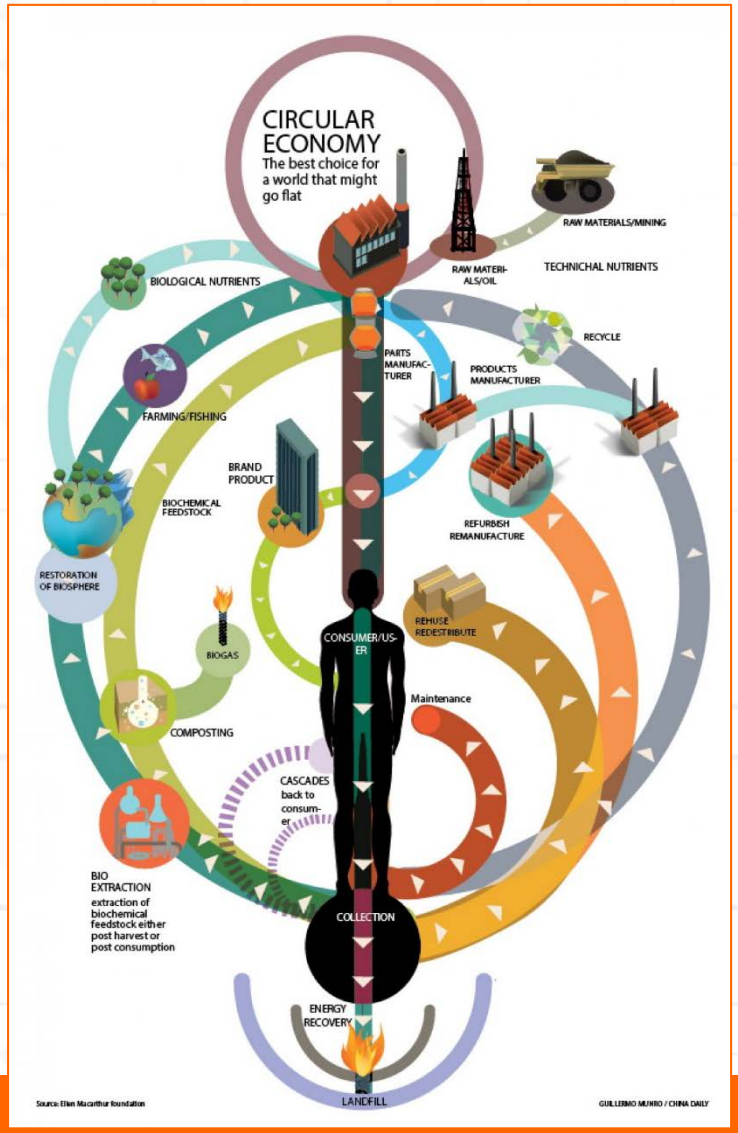
concept map



mind map

Infographics,

…which may be **complicated** due to displaying the visual analysis of the global economy or be as **simple** as a traffic sign, are currently used for **information** and **communication** purposes [7].



Visual literacy is…

… defined as ‘A group of acquired competencies for **interpreting** and **composing** visible messages’ [2].

A visually literate person

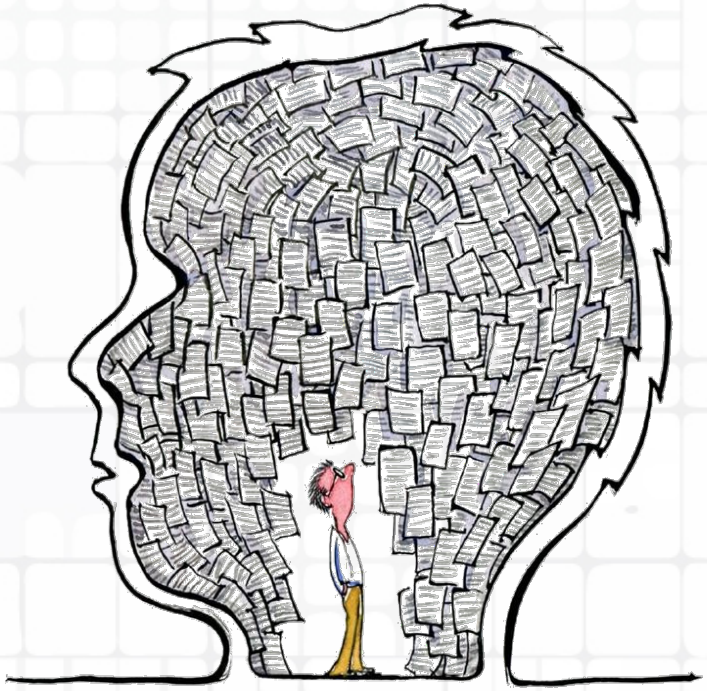
is able to:

discriminate, and make sense of visible objects as part of a visual acuity,

create static and dynamic visible objects effectively in a defined space,

comprehend and appreciate the visual testaments of others, and

conjure objects in the mind's eye [2].



Importance of the study…

The increase of visual messages surrounding individuals bring about visual information processing needs and cause the movement for developing visual literacy and spatial skills [1].

Visual literacy…

…allows a deeper interaction with messages of all kinds and introduces the process of analytical thinking about representation and meaning.

Educators realized this idea that **visual age requires visual literacy skills** as well as verbal skills that both of them must be developed [3].

Importance of the study…

In order to use especially visually intensive information and communication technology applications effectively, teachers and students should be able to **communicate visually** [4].

To prepare students to be successful learners, confident and creative individuals, active and informed citizens, they must be able to **comprehend**, **interpret** and **extrapolate** from information presented in a wide variety of formats.

…to improve image literacy skills

As technology advances, teachers and teacher candidates should gain in teaching visual literacy skills. Two ways to improve image literacy skills are recommended:

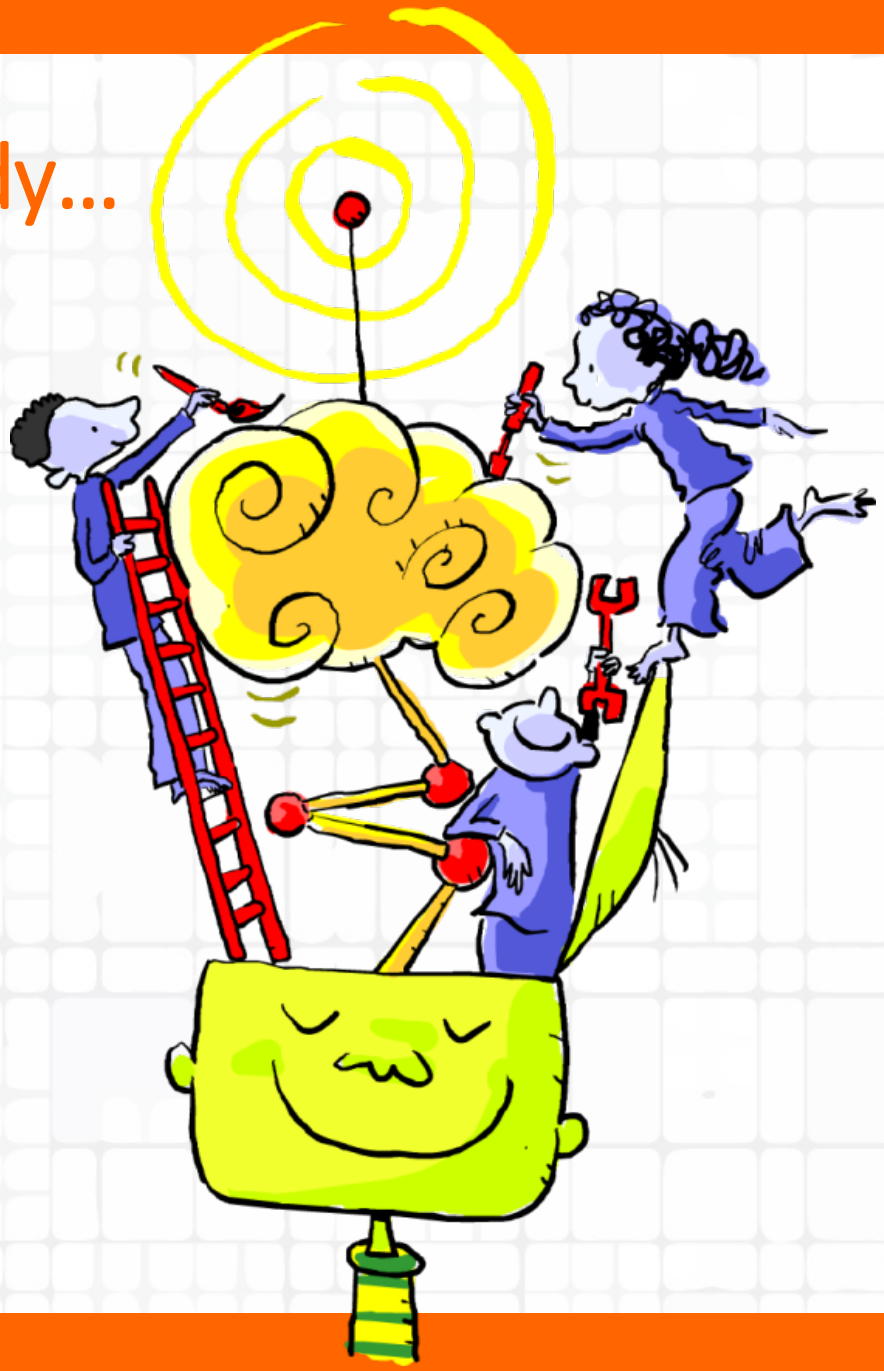
1) to help learners read or decode visuals through practicing analysis techniques

2) to help learners write or encode visuals as a tool for communication [6].

Importance of the study…

Therefore teaching visual literacy helps students interpret visual media and becoming a much broader and extensive body of learning and comprehension in education.

Visual presentations became more complicated with the utilization of technology and it is important to discuss how to interpret and design infographics in relation with visual literacy in education [8].



Instructional Technology &…

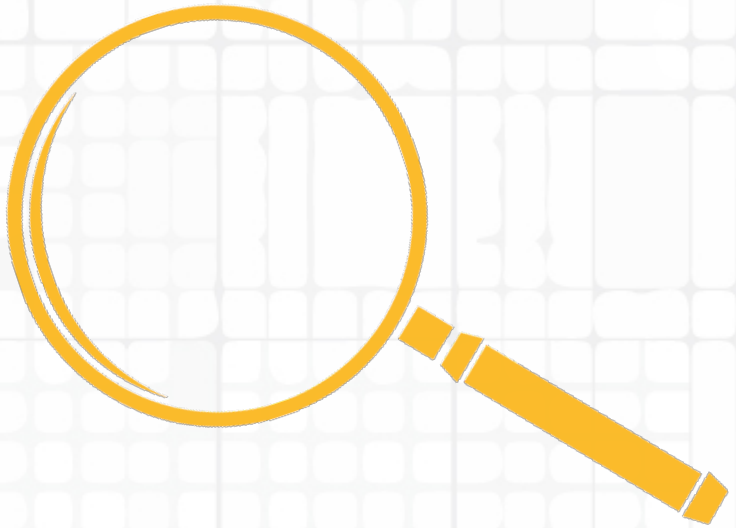
One of the most important issues of the information age that should be subjected by instructional technology is “structuring high-quality knowledge, producing and designing information”.

?

Could infographics be used in the learning process for learners to construct and design information as well as structuring knowledge?

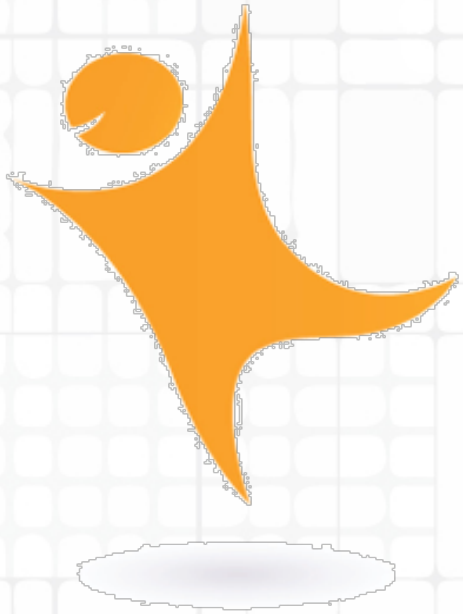
Could infographics be a way of ensuring qualified information when they are used in learning environments?

Method



This study is a case study & aims to analyze utilization of infographics within the learning process as research and learning tools with a focus on their usage in structuring knowledge, designing and constructing information through the instructional design example.

Study Group



The research was conducted with 64 (32 female and 32 male) 2nd grade students, enrolled in Computer Education and Instructional Technology Department during the spring semester of 2012 – 2013 academic year.

In the previous semesters, students had attended the "Material Design and Utilization in Education" and "Principles and Methods of Teaching" courses, which are relevant to the instructional design course content.

Implementation Process of the Study

Instructional Design Course Description

- Identifying problems through analyzing the existing education and teaching environment with respect to the instructional design principles
- Finding solutions to the identified problems
- Designing new models using the instructional design theories
- Designing instructional materials for online learning environments

The theoretical part

The basics and history of instructional design and technology identification and analysis of the needs, characteristics of learners in learning environments, teaching strategies and conceptual teaching, concept maps, worksheets, instructional design models & infographics as learning tools.

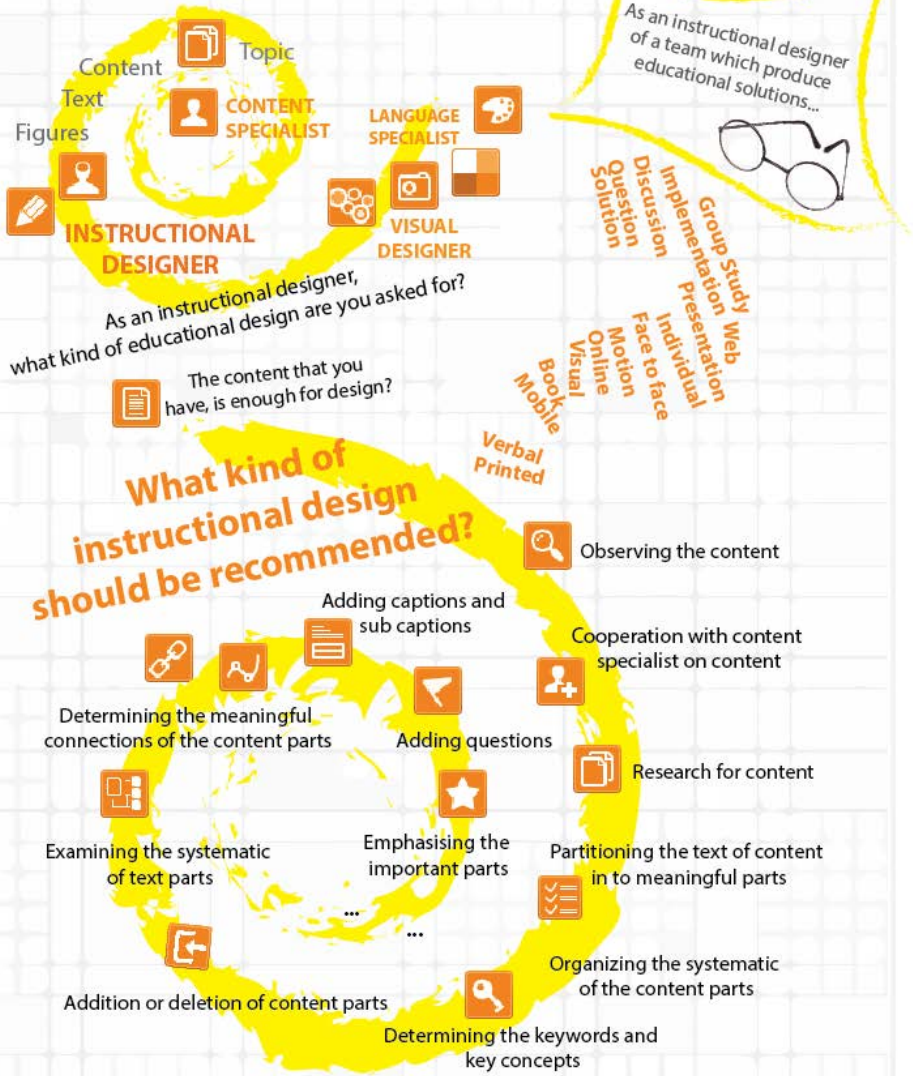
The practice part

Learners attained practical skills about instructional design.

Final Goal

Students were expected to select one of the instructional design models and design an infographic to be used as an instructional design tool as term project.

How to Design Instructional Design Process



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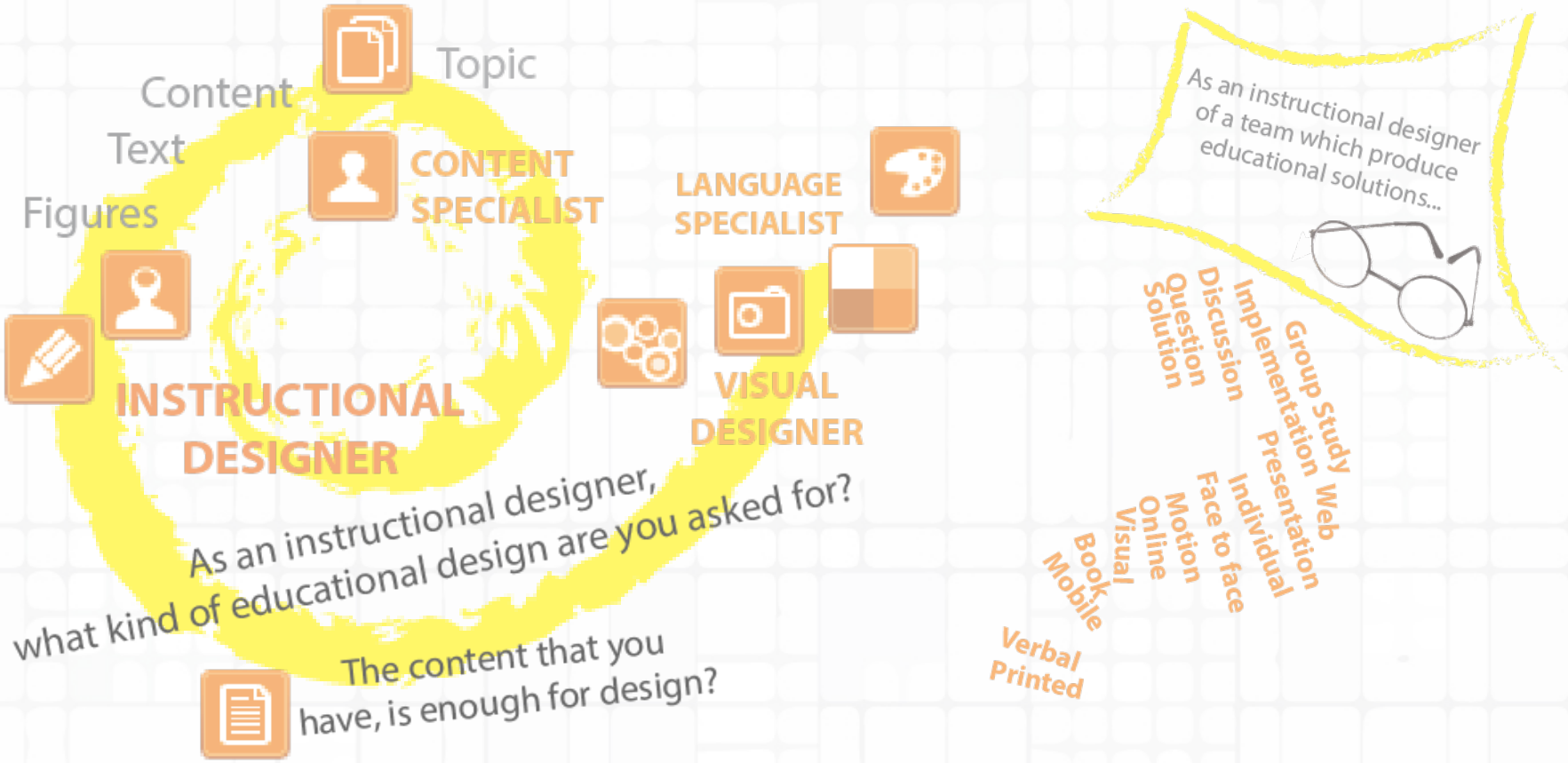
How to Design Instructional Design Process



Implementation on Infographic

Two cycles…

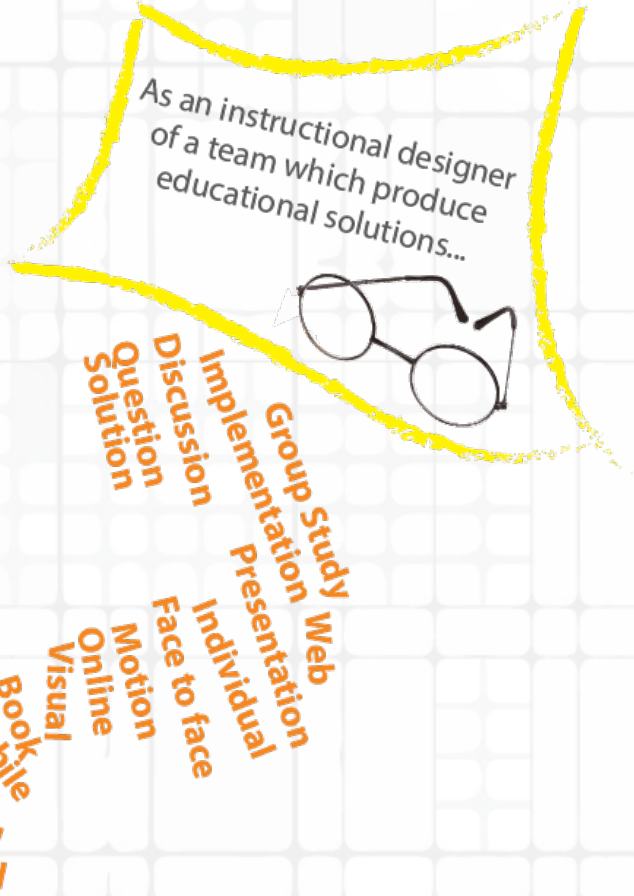
…aimed to acknowledge students about **the position of the instructional designer in the team**.

…indicated the **purpose of their positions as instructional designers** and provided the framework of their responsibilities.

Implementation on Infographic

The cyclical display centering the field expert or the resource continued within an external and internal intercyclical pattern with the inclusion of the instructional designer, visual designer and the linguist respectively.

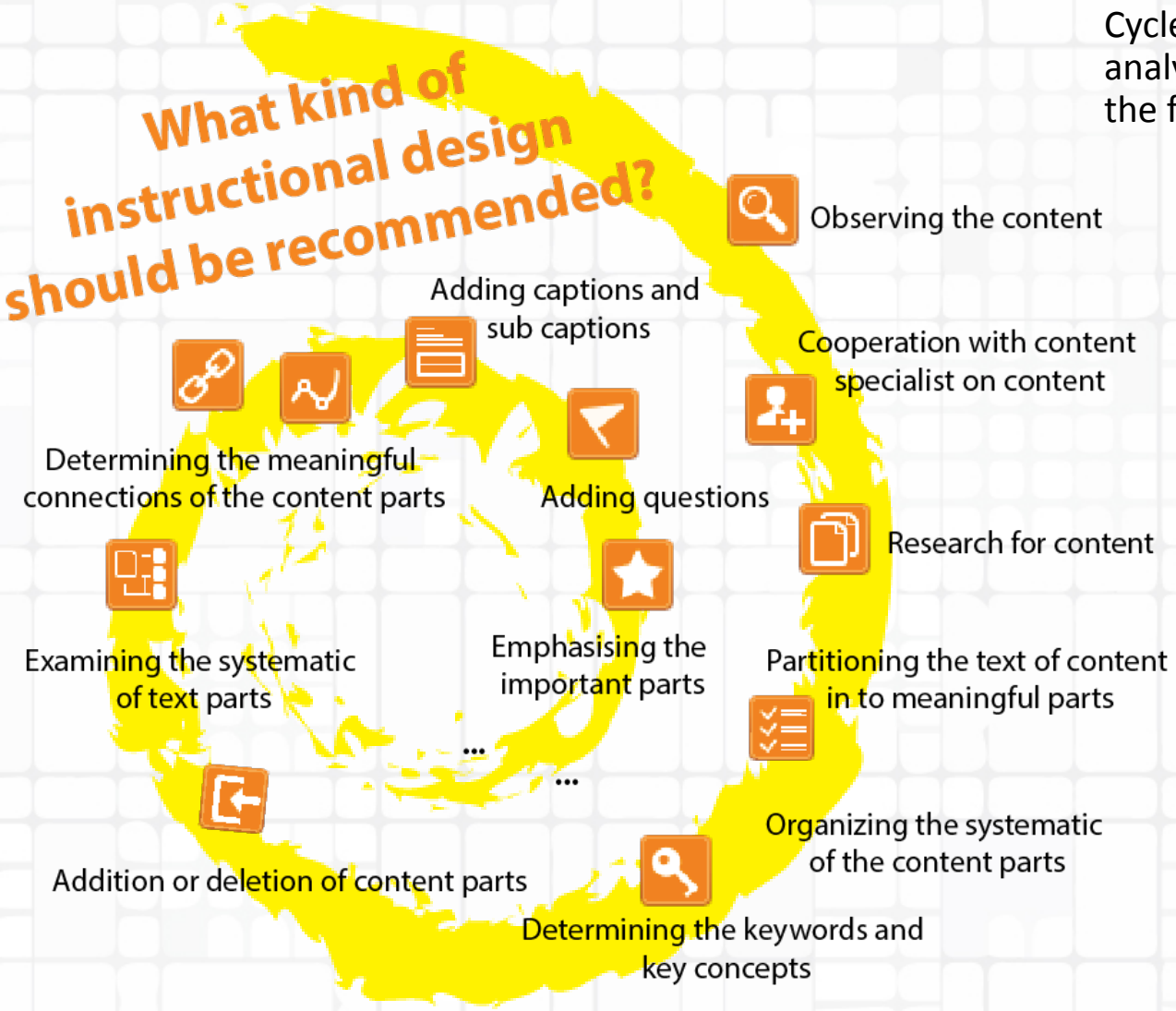
Implementation on Infographic



The first cycle ends with questions which remained within the field expertize of the instructional designer, started with the questions..

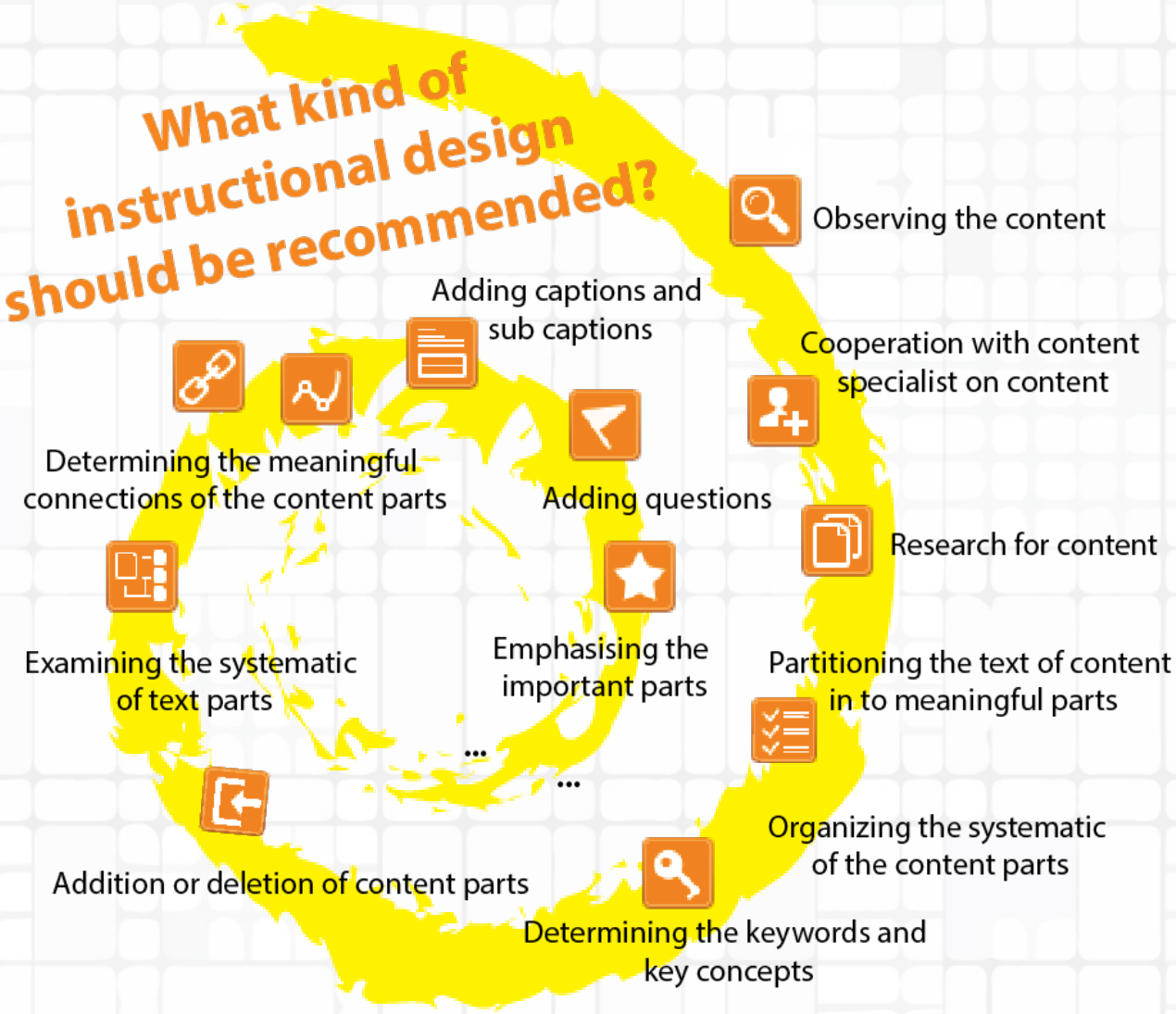
In answering the question on the type of the instructional design, students were provided with the keywords symbolized with question marks.

Implementation on Infographic



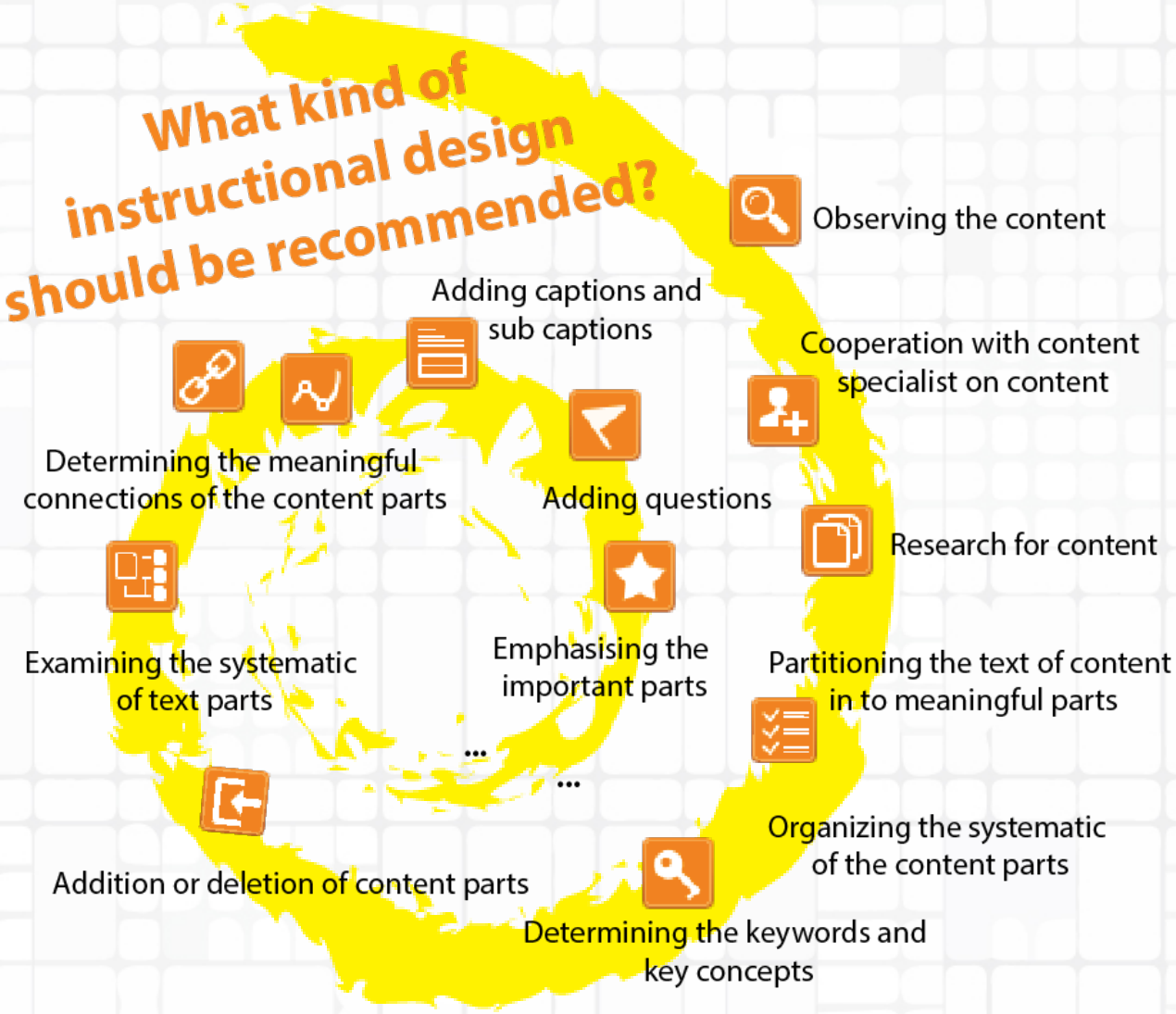
Cycle started with the reading and analysis of the content provided by the field expert.

Implementation on Infographic



After the content is created, it was suggested to divide the script into meaningful sections and determine the key words or key concepts in the script.

Implementation on Infographic



Questioning the systematics of the script and organizing the systematics between the meaningful sections, determining the relationships, completing the missing points in the content as determined in the research or removing the unnecessary sections indicated the progress in creating the script.

After the modifications in the meaning dimension such as finding a title or emphasizing the essential points in a script etc., the visual organizations came as the next phase.

Implementation on Infographic

Script and Wording

Students were expected to analyze the script in line with the given sample content and follow the steps explained above using the given figure.

Scripts into Meaningful Sections & Figures

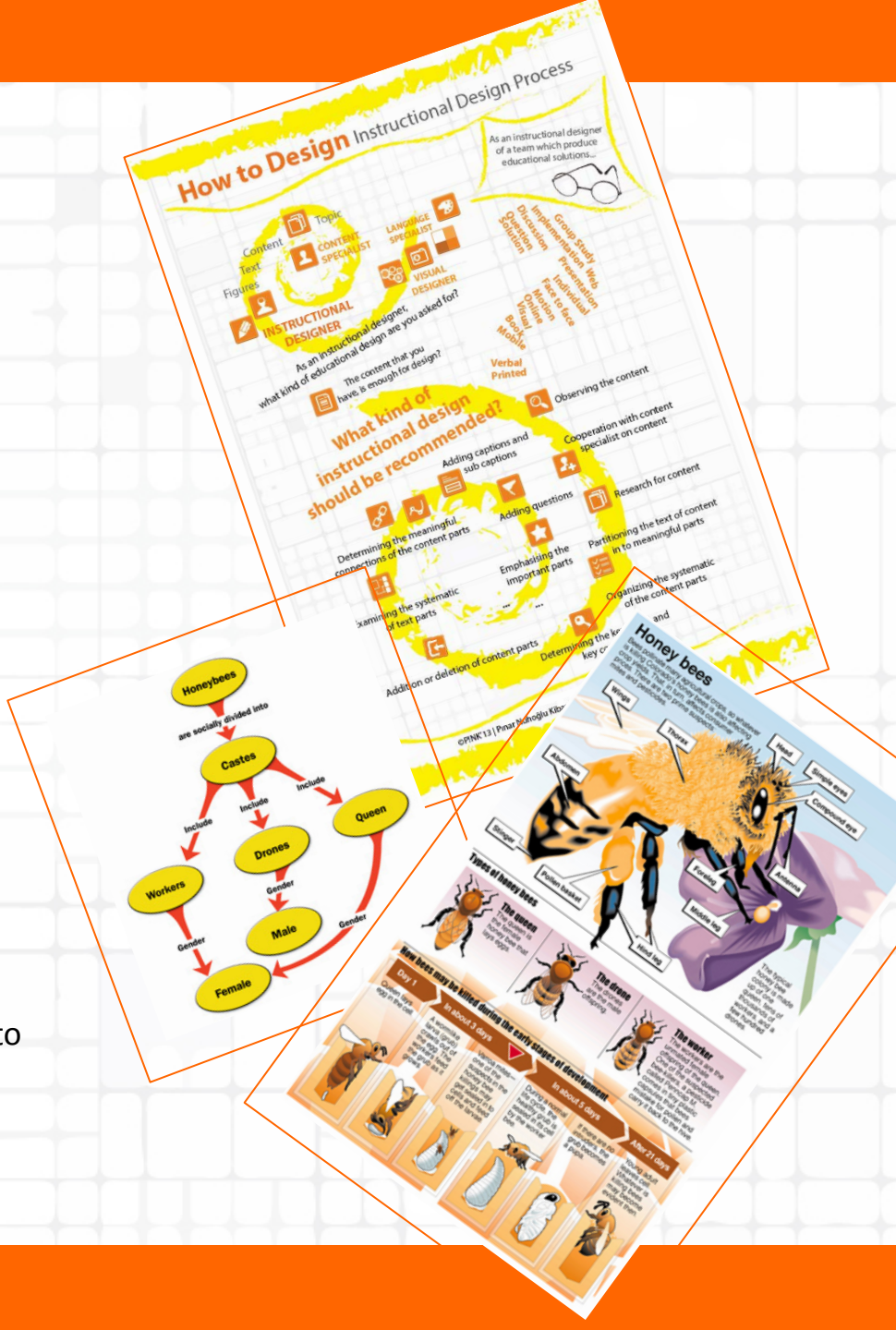
Students were expected to divide the scripts into meaningful sections and place them on a blank screen with a white background using the intended software (PowerPoint, Flash etc.). while supporting with the visuals.

Creating Concept Maps

With the aim of assisting students in their infographic design and script analysis, conceptual teaching and concept maps were emphasized and students were expected to create concept maps using the given script.

Searching for Infographics

During this week, when the figure and script exercise was performed, students were requested to search “education” on Pinterest and evaluate the infographics they found so that they could see as many examples as possible.



Data Collection Tool

The rubric that was developed by the researchers was used in the study and the infographics designed by the students were evaluated through this rubric.

The rubric was composed of the title, elements, visualization, font, colors, page format and organization of information dimensions.

According to the measures, the infographics were scored for each dimension as 0, 1, 2 and 3.

Title

The title is in line with the content and informative.

Elements

Elements include repetitions for the transfer of the content and for the learner to understand easier.

Visualization

Visualization pattern reflects the content and ensures that the content is comprehended easily and rapidly.

Font

The font completes the content and readable.

Colors

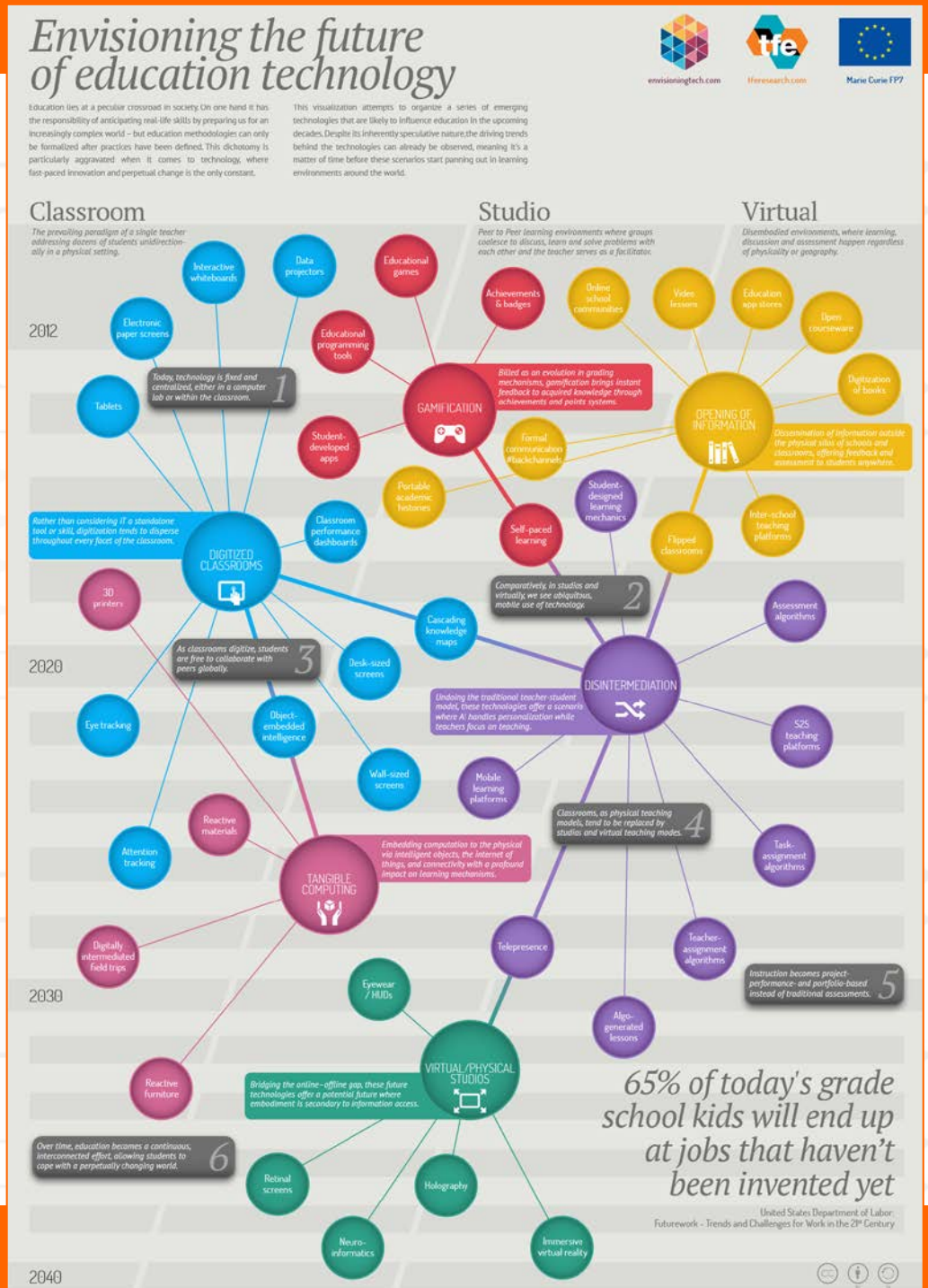
Selection of colors increased visibility; different tones of the same color have been used wisely.

Page Layout

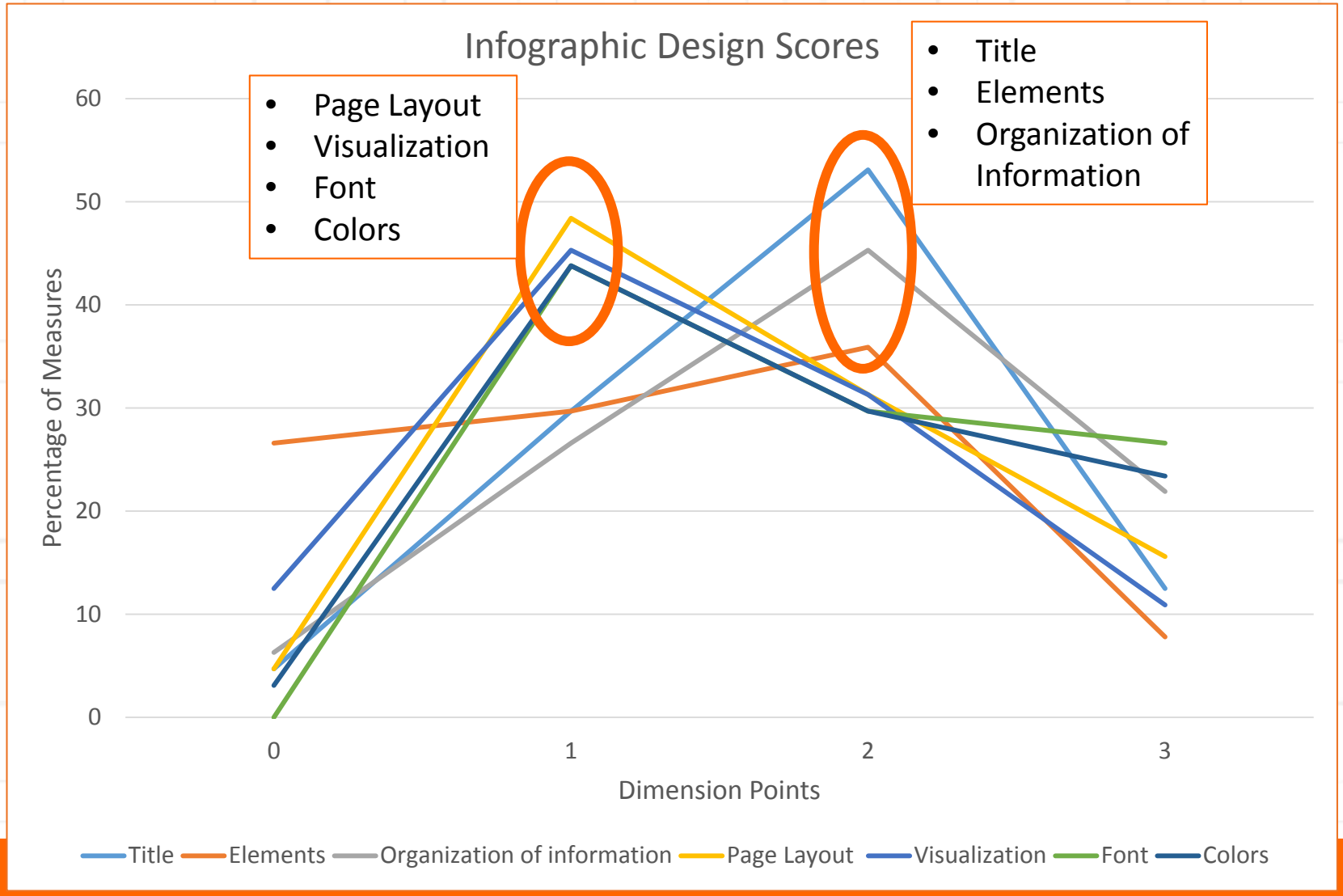
The page layout involves the components that reflect the content and it is organized from the general to the specific or from the specific to the general.

Organization of Information

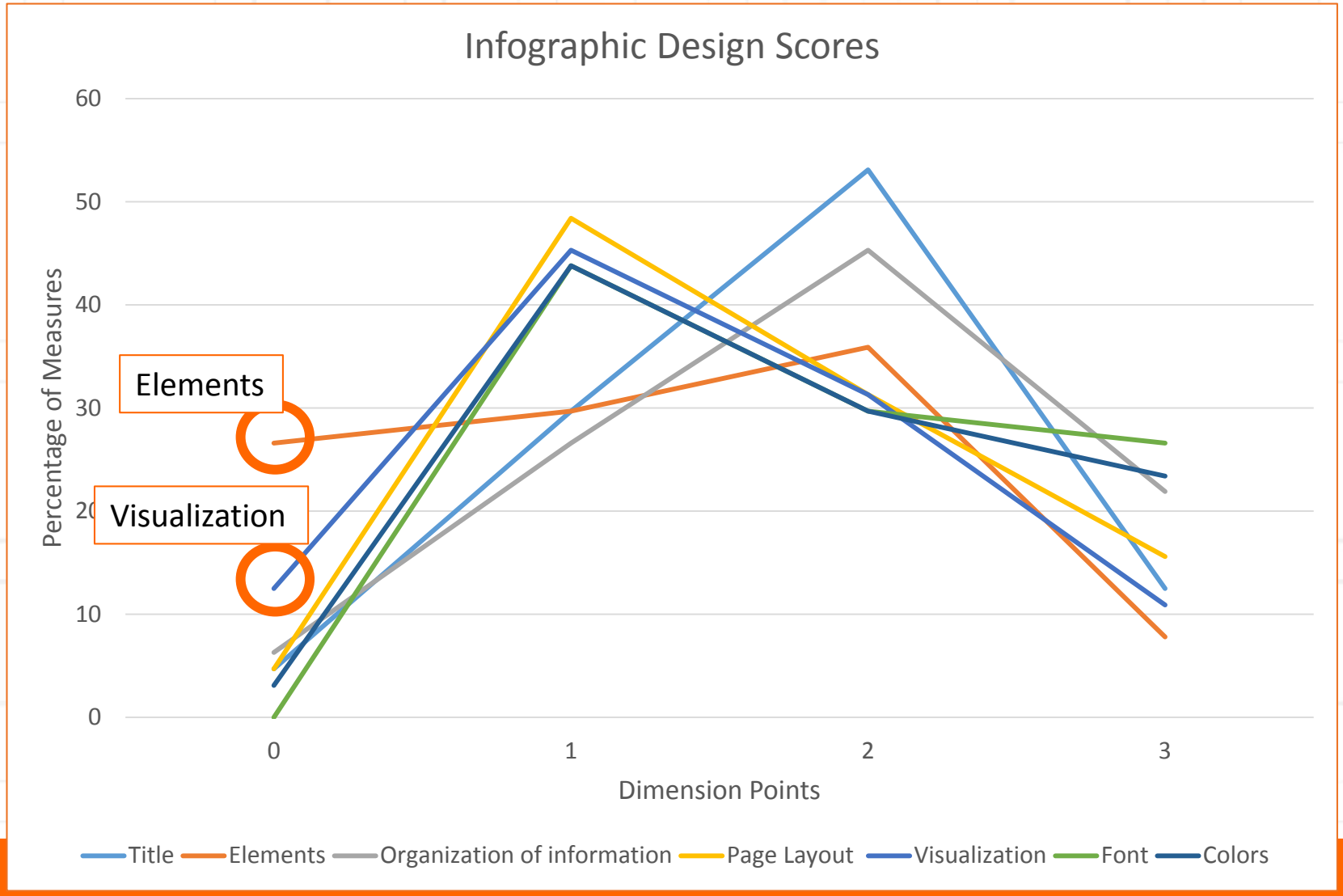
One of the methods for organization of information is used in such a way to reflect the content.



Findings


Infographic Design Scores
Page Layout
Visualization
Font
Colors
Title
Elements
Organization of Information
Percentage of Measures
60
50
40
30
20
10
0
0
1
2
3
Dimension Points
Title
Elements
Organization of information
Page Layout
Visualization
Font
Colors

Findings


Infographic Design Scores
60
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10
0
Percentage of Measures
Elements
Visualization
0
1
2
3
Dimension Points
Title
Elements
Organization of information
Page Layout
Visualization
Font
Colors

Findings

In terms of dimensions and measures, the scores indicated that the highest percentages belonged to:

Page layout

(1) The page layout is not organized in such a way to address the content-related components.

Visualization

(1) More varied visualization patterns should be used for the visualization of the content.

Fonts

(1) The font complicates the reading of the script.

Colors

(1) Selection of colors is not visually satisfying and it decreased the level of visibility.

Title

(2) The title could be more comprehensive in order to present the essential points in the content.

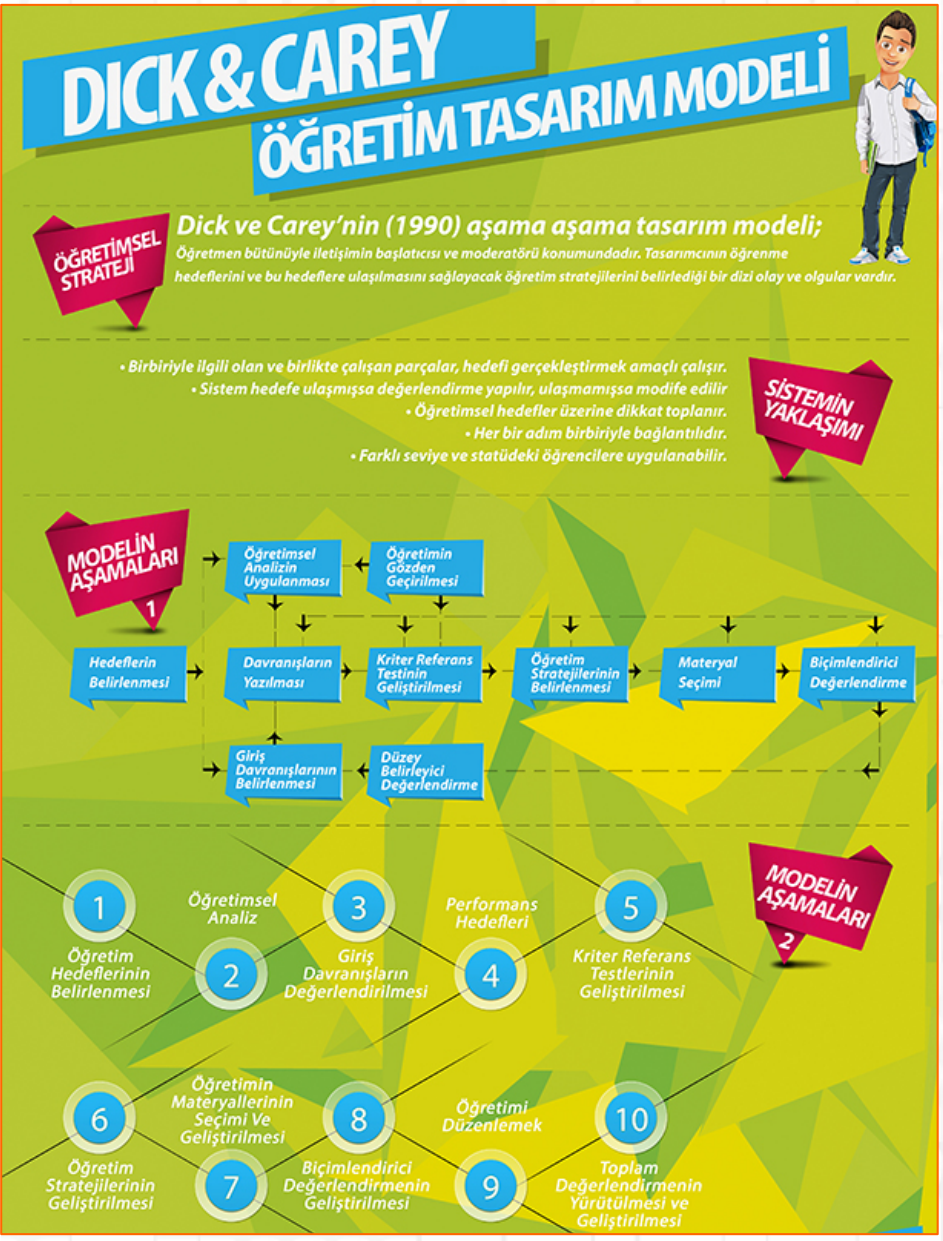
Elements

(2) Elements are used in varied patterns reflecting the content.

Organization of information

(3) One of the methods for organization of information is used.

Infographic design examples



Conclusion, Discussion and Recommendations

1. More exercises on visual design…

According to students' design scores, the accumulation is observed to have occurred in the low degrees and this indicates that sub applications should be made with respect to the dimensions.

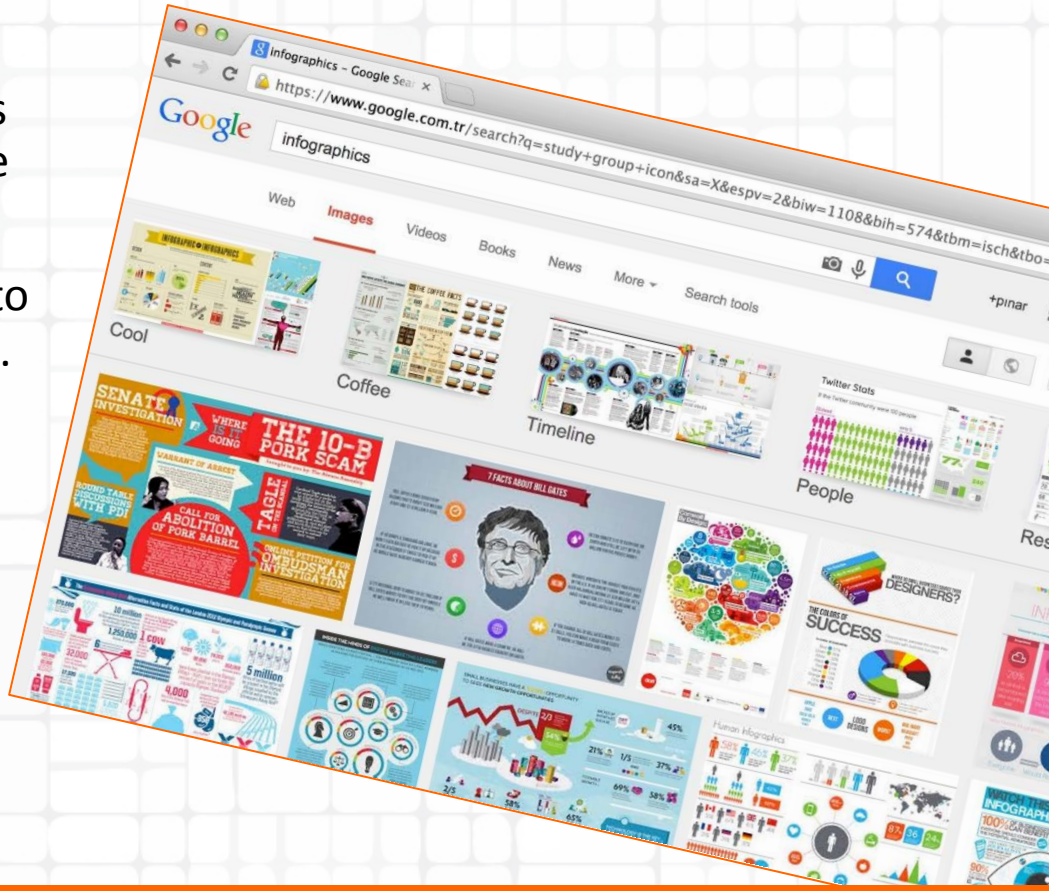
- Colors
- Fonts
- Visualization
- Page Layout

Visual Design!

Conclusion, Discussion and Recommendations

2. Analyzing more infographic examples by using rubric…

In addition to the search and analysis made on Pinterest, students could be expected to analyze more infographic examples to be able to perform better in visualization phase. These infographic samples could be evaluated in groups using rubrics.



Conclusion, Discussion and Recommendations

2. Working with small groups & getting peer feedback….

“In order to assess the quality of an infographic, which is in the form of a summary, it is important to determine how much it acknowledges, impresses and attracts the attention of the reader [9].”

In order students to produce better design solutions, they could be recommended to work periodically on their drafts in small groups starting from the moment they work individually on their themes.

In this respect, the feedback that peers of the students may provide about their design solutions could assist them in producing better solutions.

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