Evaluating an Infographic and data visualisation

**Purpose of this guide**
This guide has been produced to support people in assessing the credibility, reliability and relevance of infographics.

Infographics have grown in popularity but how do you recognise a good or bad infographic? They portray messages in an easy to understand way, but how reliable are these? How much can we trust them to inform policy or spending?

This guide details how to evaluate/appraise an infographic to ensure its relevance for your intended purpose. It will only cover print versions of infographics, online and interactive versions will have some additional considerations, and these can be found in the appendix. Although there are some differences between infographics and data visualisations, the tools and techniques presented in this guide will apply to both.

**Definition of infographic/data visualisation**

*A visual image such as a chart or diagram used to represent information or data in an easily understandable form.* (OED, 2018)

**Why evaluate?**

- To provide reassurance about the trustworthiness, value and relevance of the infographic.
- To help provide justification of why this piece of evidence has been used.

**Evaluation-how to**
There are three things that can be looked at when evaluating an infographic/data visualisation:

- Content (data, sources used, information used, what does it say)
- Visual (design elements, how does it look)
- Audience (knowledge, what do you know)

The reason for this;

**Content** - where has the information/data come from, can you confirm it is correct?

**Visual** - what has been used, why has it been used? Does it represent the data or could interpretation be misleading? Have you understood what it is trying to tell you?

**Audience** - who was this designed for? Why? If it wasn’t designed for you/your purpose/your user group is it relevant to use?
Useful questions to consider: (These are the areas you need to be looking at, you will also find them summarised into a useful checklist at the end)

General
1. Does the infographic provide enough information to base a decision on?
2. Do you need to undertake further research?
3. Is the population group similar to yours?
4. Will it work in your setting?
5. Is this really the only piece of evidence you can find for what you are doing?

Content/information (what it is saying/telling you) (written)
1. Have appropriate sources been used? (where has the information come from)
2. Are there any references to back up where the evidence has come from?
3. Have they used the right source? (Is there anything else that could have been used?)
4. Has the information been verified or checked?
5. Has the information been through any sort of quality control?
6. Does it use more than one credible source?
7. Do you know when it was produced? (How up to date is this? Is it still relevant?)
8. Is it up-to-date with government policy/guidelines?
9. Is the information factually accurate? (Can you look it up to check?)
10. Can you tell what the author’s credentials on the subject are? (Are they a hobbyist? Or is it written by a subject expert?)
11. Does it mention any reputable sites/sources?
12. Was anything not mentioned?
13. Is the infographic using suitable comparators? (you can’t compare apples and oranges)
14. Is there any information included that allows non-scientific people to understand the content? (1)
15. Does it have a clear and meaningful title? (1)
16. Does it tell a story? (1)
17. Can you sum up the point or message in two sentences or less? (1)

(Data-numbers)
18. Was the data collected in the correct way? (Can you tell?)
19. Was the data analysis rigorous? (Are there links to more info?)
20. Do you know what date(s) the data set was taken from? (Is it something that is recorded monthly? Yearly?)
21. Can you tell how clean the raw data was?
22. Is there any justification or explanation for the selection of data used?
23. Can you access the original data set?
24. Was the type of data used appropriate?
25. Are you able to assess the quality of the data? (Were there any outliers? Was it skewed? Did it contain any errors? Was the data tidied up? And if so was there any explanation for this? Can you tell?)

26. Are there references for the data? Can you visit these? Are they from valid websites/sources? (1)

27. What is the credibility of the source that the data was taken from? (2)

**Visual/design element (the way it looks)**

1. Are the graphics necessary, do they add value?
2. Has an appropriate use of colour and images been used for the target audience? (Could it be misinterpreted in any way?)
3. Is it free from typographical, spelling, grammatical errors?
4. Is the alignment correct? (Do the images line up?)
5. Are any bar charts simple? (Are they labelled? Are they misleading?)
6. Does the design hinder the communication of the message?
7. Has the most appropriate graph been used?
8. Is it arranged in a logical and organised manner?
9. Are the pictures, words and title saying the same thing?
10. Does the image/text add to the message?
11. Is the scale (if used) correct? (Does it make sense? Do the images relate to what the data is telling you?)
12. How are the objects displayed? (Do sizes of the objects matter in the presentation of the proposed information?) (1)
13. Can the colour, sizes, and kinds of objects be used to give the wrong impression to people away from the data? (1)
14. Are the colours and graphics legible and easy to read? (1)
15. Has the appropriate graph/icon/picture been used? (What is the impact of not using the right one?)

**Audience (who is it written for/purpose)**

1. Is there a clear question to the infographic?
2. Has the infographic been designed for promotional reasons?
3. Is the purpose clear? (To inform, advertise, entertain, what’s the end goal? Is it to present data with less interpretation or to make a personal argument?) (2)
4. Does it contain any bias? (Who produced this? For what reason/purpose? What do we know about the person/people/company who has put this together?)
5. Can you understand what the infographic is telling you?
6. Are they emphasising a particular point?
7. Does the infographic assume the user already has a degree of knowledge in this area? Is it appropriate for their level of understanding?
8. Are you the intended audience for this infographic? (If no or don’t know why are you using it? Is it fit for your purpose?)
9. Does it back up what you already know?
Is it trying to tell you more than one ‘story’?

Can you understand the story? (Is it laid out in a clear way that makes logical sense? Or has the data been grouped in such a way that it leads to misunderstanding?)

Is much ‘work’ needed to understand the infographic?

Is there too much information? (If yes does it detract from the message)

**Checklist table:** This checklist has been designed to take no longer than 10 minutes; it’s been designed as a quick use tool. For a more in-depth appraisal please use the full set of questions laid out above.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the infographic provide enough information to base a decision on?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the population group like yours?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will it work in your setting?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you the intended audience for this infographic?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there any references to back up where the content and data has come from?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does it use more than one credible source?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you know when was it produced? (How up to date is this?)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you know what date(s) the data set was taken from?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is it up-to-date with government policy/guidelines?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the information factually accurate? (Can you look it up to check?)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can you tell what the author’s credentials on the subject are?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there any justification or explanation for the selection of data used?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If the infographic is comparing something, are they the same thing? (e.g. apples and apples, you can’t compare apples with oranges).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Visual</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the graphics necessary, do they add value?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has an appropriate use of colour and images been used for the target audience?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Yes</td>
<td>No</td>
<td>Unclear</td>
<td>n/a</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-----</td>
<td>----</td>
<td>---------</td>
<td>-----</td>
</tr>
<tr>
<td>Is it free from typographical, spelling, grammatical errors?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If used, are the bar charts simple and labelled correctly?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is it arranged in a logical manner?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the pictures, words and title saying the same thing?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the scale (if used) correct? (Do the images relate to what the data is telling you?)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there a clear question to the infographic? And has it been answered?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is it free from bias? (Who produced this? And for what reason/purpose?)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can you understand what the infographic is telling you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can you understand this infographic without any prior knowledge on the subject?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does it back up what you already know?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Scoring:** The process of appraisal is mainly subjective and can depend on several factors. This table is to act as a guide to help you decide on its credibility, reliability and relevance. If you have more N/A, no and unclears then question if it's appropriate for use.

**Some additional things to consider**
This guide doesn't cover everything and some things to consider are:

- This is still a new area which needs more research.
- Visualisation theory, how humans perceive colours and visual patterns can have an impact on the message being delivered.
- Visualisation literacy should be considered. Evidence shows that a person’s education can impact on their ability to understand an infographic. In addition to the ‘skill’ whereby an individual can ‘read’ an image, people with a greater spatial awareness can read graphs better than others.
- Semiotics - the interpretation of the pictures by the end user, where we apply our own culture and meaning.
- There are different types of infographics and these may need to be evaluated differently. (Statistical infographic, informational infographic, timeline infographic, process infographic, geographic infographic, comparison infographic, hierarchical infographic)
- Should infographics contain a source box?
References

Appendix 1
Additional questions to consider when evaluating an online infographic (1).
(in addition to the checklist above)
- Is it being accessed on the correct web browser, is additional software needed? (Is it working correctly?)
- How up to date is the data set/web links, are they still being maintained?
- Interactive visualisations (online) and how the user is interacting with this, is it distracting to the purpose/message of the infographic? Do they need any additional technical knowledge to be able to use it?
- Can the user be walked through the idea?

Appendix 2
An alternative checklist can be found in Siricharoen WV, Vinh PC. *Question matrix method according to divided dimensions of infographics evaluation*. Personal and Ubiquitous Computing. 2017;21(2):219-33.