Com4 AgriPlant
Comics for Promoting Plant-Based Agriculture

Com4AgriPlant Learning Methodology

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1 Introduction

One of the central outputs of our project is the creation of comic strips and accompanying topical content in a toolkit to help raise awareness on the usefulness and importance of plant-based nutrition and production. This Learning Methodology has been created In order to assist people when utilising our Comics and Toolkit in educational settings and how to best employ them.

The topics of plant-based production and consumption (or diet) is important, as it can be considered an approach to an important issue our society is facing: the fact that global food production is one of the biggest contributors of environmental destruction and climate change. The advocacy of plant-based food production and consumption tries to increase the share of direct plant consumption in human diet, reducing the animal-based food consumption which has a considerably higher environmental impact and thus reduce the overall stress food production puts on our planet.

For the purpose of understanding the goals of our comics and learning units and the different ways they can be used, we want to define the terms plant-based production and consumption here too. Plant-based production refers to the production of food from crops that are used directly to feed humans in natural or processed forms, in contrast to growing crops that are to be used as animal feed for livestock. Plant-based consumption meanwhile is nutrition that is derived from plants (or fungi), in contrast to animal-based products such as meat, eggs, dairy, etc. We want to make clear that in our advocacy, we don't aim to completely abolish animal-based production or consumption as we are aware that apart from public opinion, the matter also is highly complex and a "one-size-fits-all" approach is not workable. However, it is important that we in general reduce both, animal-based production and consumption for the sake of preserving the environment.

The content of the comics and learning units has been crafted to help raise awareness of the matter, engage learners and provide an easy to work with material for educators and learners about these complex issues, as well as relatable and useful advice on how to achieve certain goals if one opts for plant-based farming or nutrition.

2 The Advantages of Visual Learning

It is generally accepted by theories on learning that humans can be categorised into different learning styles, which typically are organised around how the person is best capable of taking up and processing information to integrate it into its knowledge base. Auditory learners for example are assumed to be best able to learn by listening to information, as well as utilising audio cues to help memorise knowledge. Visual learners best grasp information if it is laid out visually and can thus be taken in with sight. This does not so much include reading, as it includes the integration of visual cues, such as graphs, timelines, images of associated objects or, as is being used by this project, comics.

Generally, while not every person is equally good with every learning style, most people employ mixtures of learning styles in their approach to knowledge acquisition, both out of pragmatism (not all information is always available in the preferred style), but also because we often struggle with monotonous learning situations if not presented with some diversity in methodology. It can thus be said that fundamentally, humans are typically generalists with a preference, not learners exclusively of a single style.

Visual learning is widely used, in various learning situations, within the education system, but also daily life. This is not just because it is one of the most widespread learning style preferences, (being linked to the most highly developed sensory organ of humans), but because it also offers several advantages that are hard to replicate with other approaches to information presentation. Whether graphics in textbooks, photos in newspapers, TV documentaries, advertisement billboards, visual learning is one of the most frequently used means to transmit information.

One of the most important advantages of visual learning is the amount of information that can be transmitted even with only brief exposure – it can allow for the simplification of complex contexts and situations into easier and faster to process media.

For example, consider the need to explain the scenery and mood of a story and the time it would take to transfer this information to the person perceiving it. As a text, it may take multiple lines of reading, it might take even more when we want to include details to reinforce what we want to tell, such as the twisted forms of trees, the density of fog or the dimmed moonlight being the sole source of illumination, as we try to establish a mysterious and unsettling mood. Maybe the cawing of crows in an otherwise eerie silence. The pounding of the protagonist's heart as they traverse this ghastly forest, filled with naught but the thin layers of mist.

Now, consider the above visualised, as images, be it as a comic, a few panels with the forest, the crows, the protagonist agonised, or as a movie, the scene in motion. The information the above paragraph tries to establish with words and wordplay alone, would be taken in at first glance from a more visualised format, even if it likely requires much more setup time and resources (case in

point, it would be beyond my own means to draw or film such a scene just for demonstration purposes).

Obviously, one could also contrast the visual to the auditory, but even audio media would struggle to condense as much and still contain as much information, as it would be able to give us the sounds but would need to describe in words the things that do not make sound. It is far more concise to insert into a picture of a foggy forest a “silence” to make up for the lack of audio, than it is to describe the lighting or tree shapes.

Another advantage of visual presentation of information would be the greater universality. The more of the content has to be substituted with words, the more it relies on a prerequisite shared vocabulary of the information provider and the receiver. My above sentence would fail to convey anything to a person that does not understand the English language, either the more complex words or at all. A visual of a foggy forest, crows with opened beaks and the anxious facial expression of the person traversing the scene on the other hand has far less of such issues. It may fall short with people who are foreign to such atmospheric conditions, the kind of dense vegetation or the symbolism of crows, but that still makes the information far more accessible to a wider array of people than any media which has a greater reliance on words. Because of this the assembly instructions of an international enterprise like IKEA or emergency instructions on planes almost entirely wordless pictograms and imagery of steps to take. The absence of a need to understand language, the concise presentation and the quick way a viewer can pick up what to do is in one case convenient, in the other crucial.

Now, again, a lot of media isn’t just visual and devoid of words. In fact, graphics, comics, advertisements, movies, the inclusion of text or audio is commonplace. However, the visual element here still condenses information, allowing faster processing times. A billboard advising slower speeds for better road safety showing a car crashed into the side of the road and maybe a simple text “There’s worse than being late.” obviously requires the viewer to be able to read and understand the implication, but much information can be taken in at a glance. The potential consequences are clear without needing any lengthy attention, which a passing driver likely doesn’t have. Nor, in the interest of road safety, should we expect them to be required to pay to a billboard next to the road. The statement can be grasped fast and thus allows with only a short moment of attention to (hopefully) leave an impression.

An advantage that can be observed here too is that the use of visual cues can help learners to engage with the matter presented more easily, as well with certain connotations that would otherwise be hard to reproduce. Well-designed imagery can, by evoking associations and emotions, both allow for a more emotionally hard-hitting message, but also can be recalled more easily due to these associations. In the example above of the car, the imagery of the car wreckage likely will be seen with certain associations in mind, but certainly so if for example the designer was to add ominous stains or smears of blood. Thus, the viewer is touched on far deeper level than if presented with only textual information and as such the image will be remembered for longer. One case where this is utilised and can be observed is the use of shock imagery on tobacco products across many

countries as a step further from mere textual warning messages. While the textual warning of lung cancer is a warning, for most it does not cause the same visceral response of disgust among the onlooker.

Overall, the advantages of visual learning as the main modality or in a combined setting (such as used in the comics of our project can be summarised as:

1. **Engagement**: Images are visually appealing and can capture learners' attention more effectively than text-heavy materials. The combination of images and text makes learning more engaging and enjoyable.
2. **Simplified Complex Concepts**: Visual tools like comics or videos can simplify complex concepts by breaking them down into digestible chunks with visual representations. This makes it easier for learners to understand abstract or difficult ideas.
3. **Multimodal Learning & Cognitive Processing**: Some media, such as comics combine visual and verbal elements, catering to different learning styles. Some learners may find it easier to understand information when it's presented visually, while others may prefer textual explanations. Comics offer a balance between these modalities. Video similarly can combine visual and auditory modalities. This combination of modalities also can enhance critical thinking skills and encourage deeper comprehension.
4. **Accessibility**: Visual media can be accessible to a wide range of learners, including those with learning disabilities or language barriers. The ability to condense cues also can help when challenged by time constraints.
5. **Emotional Connection & Memorability**: Visual Media have the potential to evoke emotions through visual storytelling. By creating emotional connections to the material, learners may be more motivated to engage with and retain the information.

3 Comics as a Learning Tool

For the Com4Agriplant project, we have chosen to utilise comics as a visual media. Already in the previous chapter, we delved into the advantages of visual media, including some of the advantages of comics specifically. Comics build on the advantages of visual media, but also expand them further by adding certain qualities that differentiate it from other visual media.

One of the main advantages of the Comic as a visual media is that it allows for progression along a temporal dimension. Over the course of different panels, the sequence of images show a progression in time, allowing to portray a situation as it develops, not just in any single state as would be the case in a still image. More advanced narratives with jumps into the past or into the future too are possible, allowing for even more complex stories to be told. This is an important quality of comics, as it allows comics to function essentially as complex visualised stories, a quality in which they are only rivalled by film, a media which however is also far more difficult and costly to produce. In terms of producing a visual narrative, comics are comparatively easier to produce, distribute and consume.

The fact that it incorporates a narrative already is its first and one of its most major advantages. This allows for comics to utilise the effect of condensing much information into visuals as described above, but on the scale of a whole story that is told across panels and pages. As we observed in the previous chapter, the possibility to condense information into visuals, while keeping text for what has to be written out, usually the speech, the inner monologues of characters or the narrative voice allows to cut down on a great many words, which offers significant advantages to the reader (and as a result, also for the creator, who wants readers to pick up their work).

Compared to still images, the narratives of comics allow for the telling of more complex situations. It allows the addition of further information, of greater nuance and of a development that can be observed across the story. If we for example take the Com4Agriplant comics of the toolkit, they each allow us to observe interactions between characters, their trains of thought, as they develop. We can observe Peter as he develops awareness of the matter of plant-based farming and witness the arguments as they are laid out in a coherent, structured manner across a conversation. But we also can observe across the strips the development of characters, their shifts in attitudes, progress in their efforts and the outcomes of actions set before. The example in the last chapter of the warning sign against speeding, the crashed car can create a story in the mind of the viewer, but it is up to the them how they think it happened and it only works because it is understood that the viewer is aware of what could cause the situation, what is being hinted at and the narrative that has to be added in interpretation is minimal. Only through the more detailed narrative progression of the Comic is it possible to convey a more complex story.

At the same time, the interpretation of images still is also an important aspect of comics. After all, it is how the reader regains the information that was shifted from pure text to visual presentation. This has multiple effects. For one, the interpretation of the image happens in parallel to the interpretation of the text and is (as discussed in the previous chapter) faster, which overall increases the speed at which a reader can follow a narrative, compared to pure textual narratives, where the reader has to interpret all information as they read along the text, passage by passage.

Furthermore, the shift towards the faster visual interpretation typically also allows for the highlighting of a message. By making certain information easier to grasp via image, the reader is freed up mentally to pay more attention to parts that remain textual. Typically, not all information is equally of significance in a narrative. Text usually achieves emphasis by dwelling longer or using more advanced narrative techniques on more important topics, while reducing the less significant to short statements, all the reader needs to know. A comic can have descriptive imagery for setting and actions of secondary importance, yet emphasise the points it wants to make through its choice of written content. The reader can focus more on what is being said and thought, rather than on mere setting information. If added emphasis has to be given, the comic can achieve such through the narrative voice. And if emphasis should rest on the visual, a panel can also be deliberately devoid of words. For educational purposes, this allows the comic to shift the readers attention towards core messages, without compromising the narrative in which it is embedded.

And this narrative is important. While up to now we have focused more on the comic as a visual media, what we have not yet touched upon is the reason why comics would act as a learning tool. While people might often have their first associations with comics be Mickey Mouse or Superman and might doubt the suitability as learning material, not only can comics also be about deep and serious topics, but also comics can be created as learning material, for whatever subject matter, such as our own comics on plant-based farming and nutrition. Such examples can be seen in many works on serious topics, such as Art Spiegelmann's *Maus*, or Marjane Satrapi's *Persepolis*, delving into topics like the Holocaust or the Iranian Revolution as part of the (family) biographies of the authors.

A similar example of educational comics on climate change would be the Environmental Comics database, compiled by Brianna Anderson, a PhD candidate in English at the university of Florida. It compiles comics on environmental topics and categorises them according to suitability for different age groups, to tackle environmental topics in an engaging and understandable manner even with kids, but also teenagers and young adults.

The embedding in a narrative brings advantages and disadvantages. The latter would be the need to not just prepare the information, but also the narrative framework, creating additional work for the author, as well as for the reader who has to take in this added narrative too. However, when done properly, the narrative provides two clear advantages, engagement and relatability. The narrative isn't just the dry information to be conveyed, but also includes in essence a case example, the story. It provides a context to the information, allowing the information to be seen through this context and thus can assist in making the content relatable, understandable and ultimately

engaging. For example, in Greece, comics have been created for the use of teaching students about Ancient Greek in schools, a practice embraced by the national curriculum. According to the creators themselves, it allows students to engage with texts in a new manner, as ancient prose is presented in more digestible and less scare portions, visual cues help learners especially those with visual preference to interpret the text and the narratives allow the formation of emotional bonds, making the exercise more interesting and less dry as instead of a dead language of old, Ancient Greek now is seen in a more personalised and interesting context.

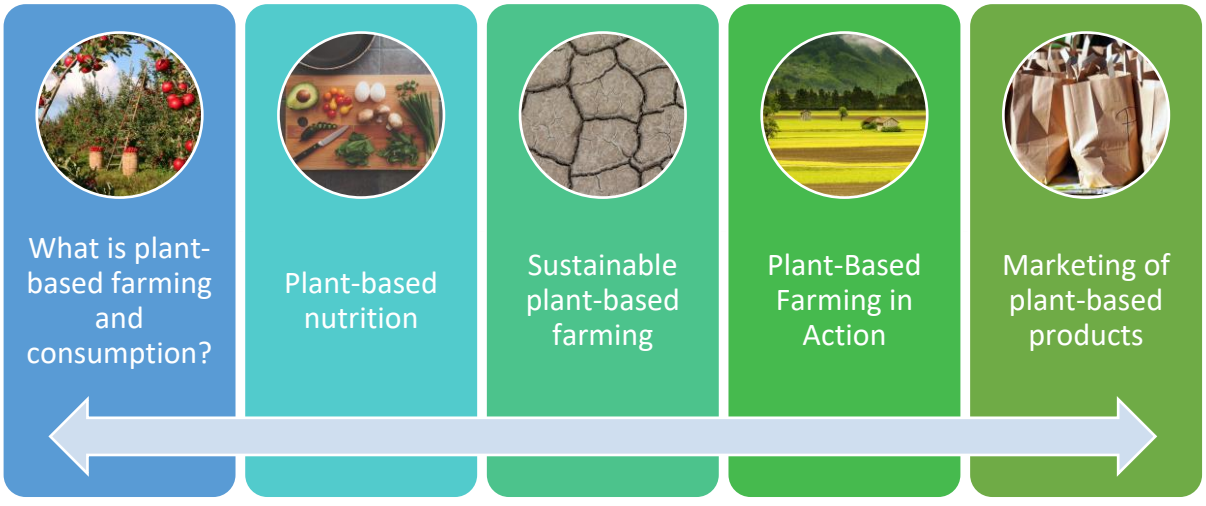
4 Practical Application of the Com4Agriplant Toolkit

As stated in the introduction, our project has created a Com4Agriplant Toolkit, designed around the use of comics to explain the topic of plant-based farming and nutrition by illustrating different situations and arguments concerning the topic with a fictional cast of characters. A total of 30 comic strips has been produced for this purpose, which are typically only up to three pages long, thus keeping the narratives short. Accompanying these are learning units, which are learning content on the same topics, but with further information and reading suggestions that can be used when integrating the comics into learning settings.

4.1 Structure and Formatting of the Toolkit

The Com4Agriplant Toolkit contains five topics, along which the learning units are structured and which it presents as follows:

- What is Plant-Based Farming and Consumption?
- Plant-Based Nutrition
- Sustainable Plant-Based Farming
- Plant-Based Farming in Action
- Marketing of Plant-Based Products



The topics are loosely building up on each other, as do the comic strips have an overarching development of the characters. Nonetheless, it is envisioned that topics and learning units can also be utilised by themselves to learn about specific aspects in isolation. This is important also because as we are covering both the production and consumption side of plant-based farming and not every topic of plant-based farming may be of interest to readers who are only consumers, not farmers.

Each topic consists out of a general introduction to the topic, the stated learning objectives and a summary of the learning units, followed by the units themselves, of which they have three to six.

Each learning unit is structured into:

- an introduction to the unit, detailing what this unit is about,
- the main content of the unit, which gives a more in-depth overview of the subject matter and expands on points made in the comic(s), the main informative portion of the unit, structured to be brief, concise and easy to understand for readers who are interested in learning more than what is shown in the comic,
- and further reading, containing curated interesting links that we suggest for people who want to look even further into the matter.

Every learning unit is also connected to one or more of the comic strips we created.

Generally, the comics can be used to better explain a point made in the learning unit, however, it is our recommendation to utilise them as starting points, introducing learners to the subject matter of the unit before the learners commence with the unit.

The comics can be used on their own to create awareness, but often can lack depth due to the extensive and complex nature of many of the topics covered. Nevertheless, this might be of interest to some educational settings.

4.2 Integration in Formal Learning Contexts

Much of the content has been designed with formal learning contexts in mind, with learning units being used by educators for teaching their students on plant-based farming and nutrition, utilising the learning unit as is or as basis for their own teaching content. Formal learning contexts for the Com4Agriplant Toolkit include the tertiary and adult education sector, but can also be the secondary education sector for matters such as plant-based nutrition. Additionally, the toolkit also offers itself as a good material for any non-formal education context, such as awareness raising efforts and trainings to promote plant-based farming and nutrition.

The content of learning units, in accordance with our objective of being able to reach and engage a greater audience, is kept purposefully from being too advanced, it would be appropriate especially for people new to the topic of plant-based farming and nutrition or a low level of knowledge. It is suitable especially for entry-level education on this matter, where the comics may help with raising interest.

Generally, the content can be useful as supplementary main content of face-to-face trainings and lessons, especially in a non-formal context, where the exercises can be implemented with learners and the comics can be discussed together. Learning units in their structure offer a good overview

of content and structure for teaching learners with an introduction via the comic leading to a main informational part. The training guide in this case then offers more active content with reflective exercises that can be done in the group or on one's own to foster the transfer of the learned knowledge to daily life and application.

However, the material also can be used in an auxiliary role, by consulting parts of the toolkit for integration (such as only the comics or just the information), to help underline a curriculum otherwise independent of the toolkit.

Lastly, one other way of utilising the toolkit would be the use in a blended learning format, where the nature of the content might help as added online reading assignments for learners to use outside normal class in self-study.

4.3 Integration in Informal Learning Contexts

The Com4Agriplant Toolkit is very much also usable outside formal learning contexts, offering itself for self-study by interested parties or for simple awareness-raising campaigns, where the comics could be used to garner interest to then look into related matters. The content of our toolkit has been kept at a level of complexity where people, especially those with some connection to the agricultural profession, can understand mostly on their own the concepts presented.

Here, the Com4Agriplant toolkit offers learners a set of comics to help understand the topics discussed and introductions to various topics, structured in an easy to grasp manner which can be picked up by readers themselves. The Com4Agriplant Toolkit can also be used in combination with the Training Curriculum, which has appropriate activities and means of presenting content to learners. We suggest that trainers and self-learners utilise the Toolkit as they see appropriate for their needs to understand the contents of the Curriculum and to help with explanation of contents.

Like with the formal education integration, the extent of integration is flexible, based on what is appropriate given the setting and interests. Topics can typically be consulted independently of each other and do not require others prior, albeit that we do recommend that Topic 1 What is Plant-Based Farming and Consumption be seen as an introductory chapter and thus be consulted first by people completely unfamiliar with the topic.

All materials of the toolkit are freely available on our project webpage.

5 Tips and Recommendations

Generally, the toolkit is designed to also be usable for self-learning, thus there might seem to be little need for input from a dedicated trainer, however, it still is beneficial for professionals to curate units that they find useful with learners and to potentially combine them with further material on the topic or other exercises to provide a better framework for the content to assist learners.

While we tried to create learning units that can be used independently of each other, it might still be better to also combine them with other topics or to provide the participants with access to the other topics to peruse at their own leisure, as we found that people appreciate especially to have the whole array of comics at their disposal, not merely those of select units.

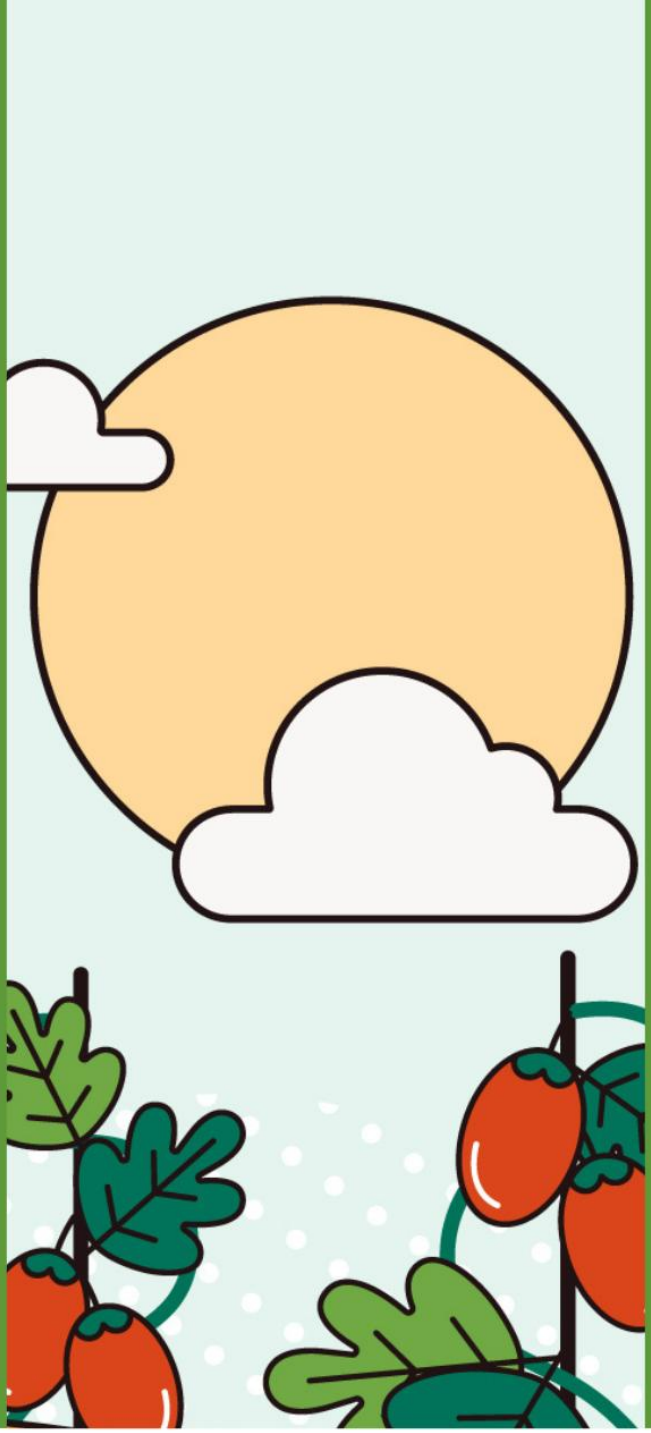
There often may be a stigma associated with the use of comics in educational settings, however, we do recommend keeping an open mind and confident attitude and to try. As said in the respective chapter on the topic above, the use of comics for educational purposes, even with more mature audiences has proven quite successful and we do believe that the use of comics even if just to promote a debate on a topic or as introduction to a topic can be useful.

6 Adaptation of Comics for Specific Target Groups

When utilising the comics and toolkit, one should consider the target group and whether the content requires any adaptations to be presented. Here, multiple different adaptations can be considered.

On the most fundamental level, it has to be considered whether the target audience falls in the group of **farmers** for which the sections on plant-based farming is relevant. Generally, the project results also target **consumers** to introduce them to plant-based diets. Pure consumers with no agricultural background are welcome to read into the plant-based farming content, might however find that it is far less relevant to them when it cannot be applied. When integrating the toolkit and comics in an educational setting, it should be clarified whether the target group is interest in all content or not. For Plant-Based Nutrition, there are Topic 1 and 2.

Another potential requirement for adaptation would be according to age. Young people might react differently to the content of the comics and toolkit. For young audiences, the toolkit content may still be unsuitable, especially if too specific. As the project considers its main target audience adults who potentially are farmers, that is the main audience the toolkit was written for. Here, the comics may help with understanding, but an educator would do good to curate the material for that which is appropriate.



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