

Review: *More than colours* (or why some Austrian school children might not want to eat red Gummy Bears anymore)

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This article was written by [Toria Forsyth-Moser](#)

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More than colours

It's usually larger museums with a greater number of expert staff and bigger budgets that produce exhibitions worthy of review, examples of best practice. I didn't know what to expect when I accepted a commission to translate an exhibition for the small Carinthian museum, wissens.wert.welt in Klagenfurt. An exhibition on colour, I was told, a multi-disciplinary approach: art history; biology; physics; optics; and chemistry. A hands-on exhibition for children from the age of five, families, adult and tourist groups (some from other countries, such as neighbouring Italy and Slovenia, hence the English translation). "An ambitious project," I thought, "how do you pitch such an exhibition and provide people of all ages with a fun day out and at the same time a worthwhile learning experience?"

Figure 1



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wissens.wert.welt museum in Klagenfurt, Carinthia, Austria

<http://www.wissenswertwelt.at/>

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Now I know how you can do it. With creativity, resourcefulness, a good team, supportive partners and a large amount of audacity. Frau Magister Sumper, manager and curator, pointed out that she relied on her small team and the generosity of her partners: Faber Castell, which provided the materials for the station, 'Make your own felt-tip pen'; and Kremer Pigments, which provided valuable pigments for the showcase 'Colours from minerals and nature'. The education team of the National Gallery in London generously allowed the use of two video clips: *Making Green: Tempera versus Oil* and *Making Purple: The Science of Art*. Dr Ricchiardi from the Fitzwilliam Museum kindly permitted the translation of their material on analytical methods of studying Old Masters. I was familiar with the intellectual content of the exhibition from my translation work, but it was only when I visited the exhibition during my summer holidays that I got to have a go at all the activities at the various stations.

Figure 2



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More than colours exhibition, wissens.wert.welt

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The exhibition is based on the six-part colour circle. It takes up an area of 120m² and has seven main sections with 21 stations. Except for staffing costs, the exhibition came in at 14,000 Euros (this figure includes a very small amount for flyers and marketing). It was possible to cope with this small budget because much of the work was created in-house in their own workshop.

For this exhibition, the beautifully illustrated panels contain short pieces of text with reduced vocabulary in a large font for young visitors and more traditionally detailed explanations for older students and adults. The English translation is below each text in a smaller font. Even the text for children is translated into English, as Austrian children start learning English in primary school and are comfortable with being confronted by text in a foreign language. In the bottom right-hand corner are the instructions for a relevant hands-on activity.

Take the panel on indigo – the history of dyeing with indigo is discussed and in parallel there is a hands-on opportunity for visitors to have a go at printing a piece of fabric with a traditional stamp and indigo dye. Also, at the entrance to the museum, in a little garden area, visitors can see six different native dye plants growing. It surprises children to see that the flowers for the indigo dye are in fact yellow.


Figure 3

Indigo



Indigo ist eines der ältesten pflanzlichen Färbemittel. Er wurde in Europa aus Färberwaid, einer gelb blühenden Pflanze, gewonnen.

Indigo is one of the oldest plant dyes. In Europe, it was won from woad, a yellow-flowering plant.




Heute wird der Farbstoff Indigo, der unseren Jeans ihre typische Farbe gibt, künstlich hergestellt.

Today the indigo dye, which gives our jeans their typical colour, is produced synthetically.

Die Färber gaben die Indigo-Pflanzen in große Holzböttiche mit Urin und ließen sie darin gären. Nach ein paar Tagen war der blaue Farbstoff aus den Pflanzen in die Flüssigkeit gewandert. Danach wurden weiße Stoffe mehrere Tage lang darin eingeweicht. Erst als die Stoffe auf einer Wäscheleine aufgehängt wurden, verfärbte sich der Stoff blau. Damals glaubten die Leute an ein Wunder. Tatsächlich handelt es sich jedoch um eine chemische Reaktion. Denn der Indigo-Farbstoff wechselt seine Farbe von Gelb über Grün in ein leuchtendes Blau, sobald Sauerstoff dazukommt.

The dyers put the indigo plants into large wooden vats filled with urine and let them ferment. After a few days, the blue dye from the plants seeped into the liquid. After that white fabrics were soaked in this liquid for several days. Only when the fabrics were hung to dry did the cloth turn blue. Long ago people believed this was a miracle. In reality, it is a chemical reaction. When oxygen is added to the process, indigo dye changes its colour from yellow to green to a shining blue.



Blaudruck ist eine traditionelle Art der Stoffdruckerei, die bei uns nur noch wenige beherrschen. Mit den Stempeln kannst du ein Stück Stoff selbst bedrucken!

Blue-dyeing is a traditional form of fabric dyeing, which only few people still practice. With pattern stamps you can print a piece of fabric yourself!

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Indigo panel in the *More than colours* exhibition, *wissens.wert.welt*

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An interesting innovation are the goggles created by David Riepan, an art historian and electrical engineer. The team conceived of the idea of such goggles when posing the question, 'What would the world look like without colour?' Switch them on and everything appears in black and white. Some stations deal with sensory perception and the emotional reaction to certain colours, others with biological concepts such as signal colouration and camouflage. Electromagnetic waves and gamma rays are discussed alongside the making of dyes and colour mixing, using a hands-on approach with touch-sensitive computer screens.

Figure 4



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Goggles to show the wearer how the world would look without colour

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I was fascinated to see digital magnification of a variety of paint samples, from oil to egg tempera. Frau Magister Sumper, who is also a trained artist, created a set of different paint samples to demonstrate the variety of textures and consistencies, so important in the restoration of paintings. In this exhibition, science is a means of exploring colour. However, the children are not aware that they are 'doing' science. Of course, the panels for the adult visitors go into greater depth and contain more scientific explanation. Analytical methods discussed include optical microscopy, reflectance spectroscopy, near-Infrared imaging, Fourier-Transform Infrared spectroscopy, macro XRF scanning, RGB composite maps and X-ray fluorescence spectroscopy. What impresses me so much about this approach is the opportunity for family learning. Parents and children can enjoy the same exhibition at different levels and have a shared learning experience. Children can observe their parents learning and families can discuss their new-found knowledge.

Figure 5



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More than colours exhibition, wissens.wert.welt

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Some critics might say that the exhibition touches on too many subjects and doesn't deal with each scientific area in enough detail. However, the idea, I'm told, is to interest children in the process of discovery so that they will want to keep discovering science when they go away.

From the comments in the visitors' book and on social media you can see that the exhibition has been well-received. I asked the curator what sorts of questions the children asked and she gave me two examples: 'Are all the colours really hidden in our light?' and, 'Is the red dye from a louse really in the red Gummy Bears?'

Which brings me to the only weak point, in my estimation: the marketing materials. It might make the exhibition more attractive to visitors and teachers alike if the leaflets pointed out that the exhibition has a multi-disciplinary approach with an emphasis on science. The title, *More than Colours*, implies more but does not in itself spell it out. A teacher might want curriculum-linked information, showing that the study of colour can be relevant to what they are teaching in school. It is such an excellent exhibition, I would want every child to be able to experience it.

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Author information



Toria Forsyth-Moser

Education and heritage outreach professional

[Contact this author >](#)

Toria Forsyth-Moser is an education and heritage outreach professional and blogger