

# Interaction Design as an Interdisciplinary Research Mindset

Author: Stefan Wölwer

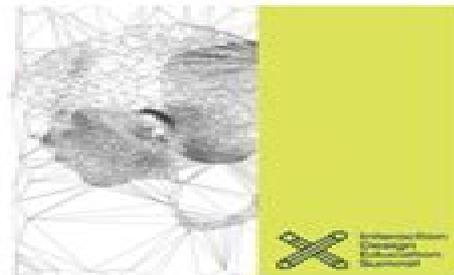
(Script and slides of the talk by invitation held at the Interaction Design Education Summit 23 in Zurich, Switzerland, on the 25th of February 2023)

## Interaction Design as an Interdisciplinary Research Mindset

Stefan Wölwer  
Interaction Design & Digital Communities  
HAWK University of Applied Sciences and Arts, Winterthur

HAWK

www.stefanwoelwer.ch



Slide 1: Interaction Design as an Interdisciplinary Research Mindset

Hello everyone, thanks a lot for inviting me to this summit. I've been really looking forward to it and it's great to be here meeting all of you. My talk is about Interaction Design as an interdisciplinary research mindset, a topic I am very interested in as I have been working in this field for quite some time now. So please allow me to share my position on what interaction design is all about.

Interaction Design is about designing the parameters which frame the interactions between us, space and things.



Slide 2: Interaction Design is about designing the parameters which frame the interactions between us, space and things.

Interaction design is about designing the parameters that frame the interactions between us, space and things. A game of chess helps to illustrate what I mean. First of all, we can't design the interactions between the players in detail. It's all based on their knowledge, experiences and skills. We may have an idea of how they will play, but at the end of the day it's not possible to predict the outcome. What we can do is design the artefacts, rules and mental models needed to play a game of chess. First there are the chess pieces. Here we can shape the figures in great detail, as it is of course important to distinguish between the queen and the king. As well as basic recognisability, we can also consider aesthetic qualities for these pieces. In other words, the chess pieces represent the products in interaction design.

# Interdisciplinary Interaction Design Pdf

**Sebastiano Bagnara, Gillian Crampton  
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web these ions are called spectator ions because they do not participate in the actual reaction canceling the spectator ions gives the net ionic equation which shows only those species that participate in the chemical reaction  $2\text{ag}^+\text{aq} + \text{cr}_2\text{o}_7^{2-}\text{aq} \rightarrow \text{ag}_2\text{cr}_2\text{o}_7\text{s}$  label 4 2 3

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web jan 29 2020 the ionic form of this reaction is  $2\text{na}^+\text{aq} + 2\text{cl}^-\text{aq} + \text{cu}^{2+}\text{aq} + \text{so}_4^{2-}\text{aq} \rightarrow 2\text{na}^+\text{aq} + \text{so}_4^{2-}\text{aq} + \text{cucl}_2\text{s}$  the sodium ions

and sulfate ion are the spectator ions in this reaction they appear unchanged in both the product and reactant side of the equation

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web mar 11 2014 solution ionic equation  $\text{H}^+ \text{aq} + \text{Cl}^- \text{aq} + \text{Na}^+ \text{aq} + \text{HCO}_3^- \text{aq} + \text{Na}^+ \text{aq} + \text{Cl}^- \text{aq} + \text{H}_2\text{O} \text{l} + \text{CO}_2 \text{g}$  the spectator ions are  $\text{Cl}^-$  and  $\text{Na}^+$   
 net ionic equation  $\text{H}^+ \text{aq} + \text{Cl}^- \text{aq} + \text{Na}^+ \text{aq} + \text{HCO}_3^- \text{aq} + \text{Na}^+ \text{aq} + \text{Cl}^- \text{aq} + \text{H}_2\text{O} \text{l} + \text{CO}_2 \text{g} \rightarrow \text{H}^+ \text{aq} + \text{HCO}_3^- \text{aq} + \text{H}_2\text{O} \text{l} + \text{CO}_2 \text{g}$  here is a video on spectator ions  
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web the six  $\text{NO}_3^- \text{aq}$  ions and the six  $\text{Na}^+ \text{aq}$  ions that appear on both sides of the equation are spectator ions that can be canceled to give the net ionic equation  $3\text{Ba}^{2+} \text{aq} + 2\text{PO}_4^{3-} \text{aq} \rightarrow \text{Ba}_3\text{PO}_4 \text{s}$

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web these spectator ions whose presence is required to maintain charge neutrality are neither chemically nor physically changed by the process and so they may be eliminated from the equation to yield a more succinct representation called a

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web net ionic equations an equation for a reaction in solution showing only those particles that are directly involved in the chemical change spectator ions an ion that is not directly involved in a chemical reaction an ion that does not change oxidation number or composition during a reaction products

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web the equation below is the final net ionic equation after elimination of the spectator ions which yields water  $\text{H}^+ \text{aq} + \text{OH}^- \text{aq} \rightarrow \text{H}_2\text{O} \text{l}$  the spectator ions in  $\text{KOH} \text{aq}$  and  $\text{HNO}_3 \text{aq}$  are  $\text{K}^+ \text{aq}$  and  $\text{NO}_3^- \text{aq}$  how to identify and list the

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web aug 8 2022 a spectator ion is an ion that does not take part in the chemical reaction and is found in solution both before and after the reaction the net ionic equation is the chemical equation that shows only those elements compounds and ions that are directly involved in the chemical reaction

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web jul 26 2017 answer the spectator ions are explanation in the net ionic equations we are not include the spectator ions in the equations spectator ions the ions present on reactant and product side 16 used to grind chemicals to powder tmraor nda stlepe star 4 4 5 heart 181 verified verified answer food

**10826 ap chemistry chemical equations worksheet loudoun** - Jul 30 2022

web the new format requires students to write balanced chemical equations showing only the reacting substances excluding spectator ions for three different sets of reactants and to answer a short question requiring no calculator about each reaction the questions are intended to test the students understanding of the meaning of the reactions

*spectator ions learn their role in reactions examples* - Mar 26 2022

web jun 2 2023 the spectator ions are cut out from a reaction hence the net ionic equation for the above reaction would be  $2\text{cl} \text{ aq} \text{ cu} \text{ 2 aq} \text{ cucl} \text{ 2 s}$   $2\text{cl} \text{ aq} \text{ cu} \text{ 2 aq} \text{ cucl} \text{ 2 s}$  these spectator ions are not actively involved in the reaction the existence of spectator ions affects the debye length