Cybersecurity Comic:

An Image Change to "Cool Cybersecurity" Findings and Challenges to Raise Children's Security Awareness

Motivation

Positive emotions and feelings towards a task or topic strongly impact self-efficacy beliefs - the belief in one's own abilities and success [1][2]. Our motivation for this research was to find out if our comic increases. . .

RQ1 . . . children's level of understanding of cybersecurity?
RQ2 . . . children's positive perception of cybersecurity?
RQ3 . . . children's interest in the field of cybersecurity?

Evaluation Procedure

QR Code 1 access to the before reading questionnaire

QR Code 2 access for reading the comic

QR Code 3 access for the after reading questionnaire

QR Code 4 access to the 1 week after reading questionnaire

To get first impressions on our comic we managed to recruit pupils at 3 elementary schools at Chiba Prefecture, Japan.

Sample

Children who completed all questionnaires	N = 130
6th Grade	130
Sex	
Female	50
Male	71
No answer	48

Table 1: Population Overview

Analysis of Preliminary Results

Quantitative Answers:	Descriptive statistics
Qualitative Answers and Comments:	We used both inductive and deductive approaches in the software MAXQDA for data analysis [5]

Cybersecurity Comic

Image:
Page capture from the comic [3]– character gets a phishing email

The story of the comic takes place in a city called Cyberspace. The characters who live in Cyberspace are technical devices who interact with each other during their daily life.

How do you feel about cybersecurity? (N = 130) *Frequencies*	Before	After	1 week after
I think it's cool / I think it's very cool	47	79	63
I feel neutral about it	43	41	57
I don't think it's cool / not cool at all	8	10	10
I don't know	32	0	0

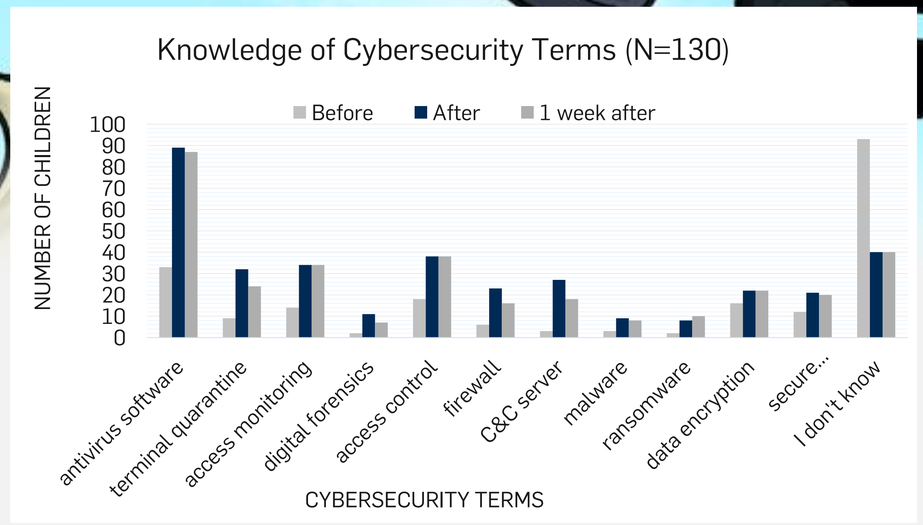

Table 2: Number of children who answered that they know the cybersecurity terms

Comments and Suggestions (after reading)

I've **learned** from the comic *(7 Comments)*
It was **amazing** *(1 comment)*
It was **good** *(1 comment)*
It was **cool** *(5 comments)*
That was a **funny** story *(12 comments)*
It was **interesting** *(15 comments)*
Further course of the story *(2 comments) [...]*

Difficult *(10 comments - Example: "it would be easier [...] to understand if the language of cyber security were made simpler")*
Language specific presentation *(3 comments)*
Dangers *(7 comments – Example: "I learned how scary viruses are") [...]*

Preliminary Results for our Cybersecurity Comic

RQ1: Our results regarding children's understanding are limited because we only have data about wheather they recall a term. Children were not able to describe the terms and found it difficult.
RQ2: Children liked the comic and its story.
RQ3: Cybersecurity is perceived as something interesting, but difficult to understand. There is a **need for discourse** after reading.

Future Work / Open Questions

It is still in question if children are able to do the transfer from a created universe to their own life. Furthermore, we as security experts have to **make cybersecurity scenarios easier to understand** [4].

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[3] Harunobu YAGI and Manga artist sohsuke. ***Everyday Zeroday.*** *https://tapas.io/series/EVERYDAY-ZERODAY/info, 2021.*
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[5] Stefan Rädiker and Udo Kuckartz. Focused Analysis of Qualitative Interviews with MAXQDA. MAXQDA Press, 1 edition, 2020.