

ESCAPE:

Preparing healthcare professionals for cyberattacks



Material for learners

***An Integrated Cybernetic Awareness Strategy to
Assess Cybersecurity Attitudes and Behaviours in
School Context***

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<i>An Integrated Cybernetic Awareness Strategy to Assess Cybersecurity Attitudes and Behaviours in School Context</i>	
Language	English



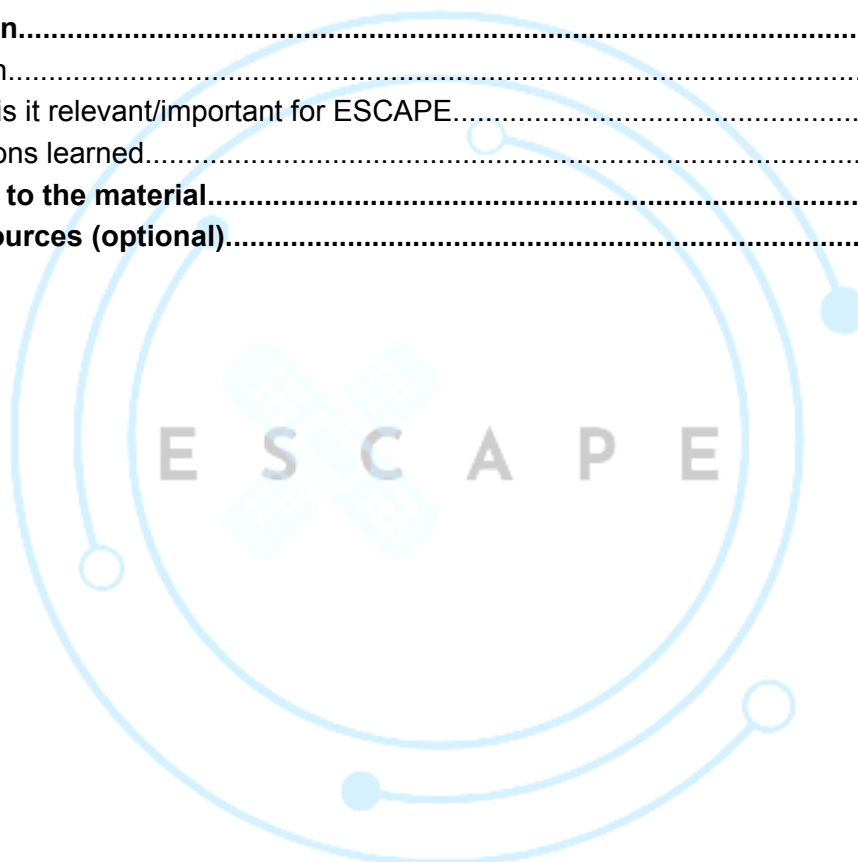
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1. Name of the material and description

A research article proposing a comprehensive strategy to enhance cyber awareness among junior high school students. It combines assessment tools (questionnaires), self-diagnosis, and structured lesson plans tailored to ICT and citizenship curricula. The study measures risky attitudes and behaviors related to cybersecurity among students in grades 6 and 9, offering both aggregate and individual-level insights.

2. Classification

Category	Mark if applies
Sector	<input type="checkbox"/> Healthcare <i>(all materials focusing specifically on the healthcare sector)</i>
	<input type="checkbox"/> General public <i>(materials targeting citizens but that are considered useful and relevant for working with the students and for the professionals, these tend to be more generic materials not targeting a specific sector)</i>
	<input checked="" type="checkbox"/> Other <i>(other materials considered relevant event though targeting a specific sector, for instance a company, but that are considered relevant for learning about cybersecurity and data protection)</i>
Topics covered	<input checked="" type="checkbox"/> Cybersecurity
	<input type="checkbox"/> Data protection
Situation type	<input checked="" type="checkbox"/> Prevention
	<input type="checkbox"/> Impact (i.e. when it is occurring or has occurred) on patient care. <i>(e.g. direct treatments, medicine distribution, etc.)</i>
	<input type="checkbox"/> Impact on all other activities not involving direct patient care. <i>(e.g. recording data, lab tests, etc.)</i>



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Language of the original materials	<input type="checkbox"/> Dutch
	<input checked="" type="checkbox"/> English
	<input type="checkbox"/> German
	<input type="checkbox"/> Italian
	<input type="checkbox"/> Spanish
Type of the material	<input type="checkbox"/> Guidelines or manuals
	<input type="checkbox"/> Case or examples
	<input type="checkbox"/> Training courses
	<input checked="" type="checkbox"/> Others

3. Description

This is an integrated educational strategy designed to assess and improve cybersecurity attitudes and behaviors in a school context through a three-step process.

3.1. Origin

- **Authors:** Mário Antunes, Carina Silva, Frederico Marques.
- **Published in:** *Applied Sciences*, Volume 11 (23), 2021; article number 11269. Open-access via MDPI.

3.2. Why is it relevant/important for ESCAPE

- Emphasizes **early-stage education**, focusing on foundational awareness and digital citizenship skills among adolescents—an often-overlooked group but critical in long-term cybersecurity resilience.
- Provides **actionable tools** (validated questionnaires, self-diagnosis instrument, and ready-to-use lesson plans) for educators to implement directly in schools.



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- Encourages integration of cybersecurity education into existing **ICT and citizenship curricula**, supporting scalable and sustainable adoption.

3.3. Lessons learned

Educational strategy details:

- **Introduction:** Schools must address the growing digital exposure of youth by fostering cybersecurity awareness as part of their digital citizenship journey.
- **Target group:** Junior high school students (6th and 9th grades).
- **Risks addressed:** Online risky behaviors and poor attitudes due to lack of awareness among young digital natives.
- **Solutions proposed:**
 - **Questionnaires** to assess attitudes and behaviors.
 - **Self-diagnostic tool** to help students reflect on their own cybersecurity competence.
 - **Lesson plan** crafted for ICT and citizenship education.
- **Implementation tips:**
 - Use both global and individual-level scoring and histograms to tailor guidance and track progress.
 - Incorporate self-reflection and peer discussions to deepen learning impact.

4. Direct link to the material

Accessible through *Applied Sciences* (MDPI): article number 11269, Volume 11 (23), 2021
<https://www.mdpi.com/2076-3417/11/23/11269>



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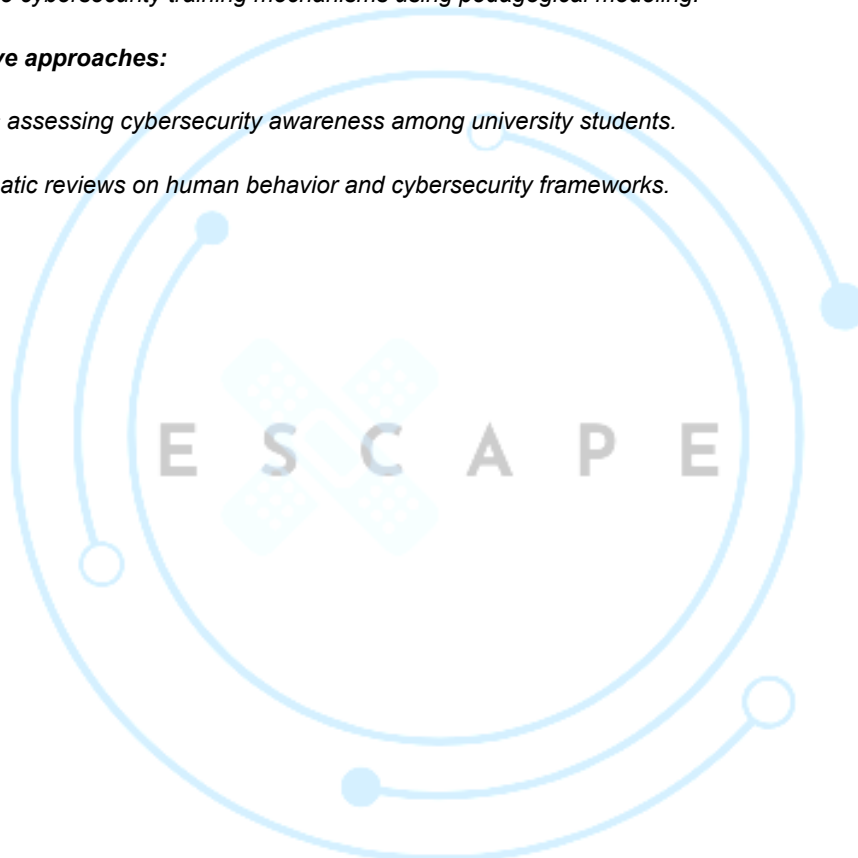
5. Other resources (optional)

Related MDPI works:

- *Adaptive cybersecurity training mechanisms using pedagogical modeling.*

Comparative approaches:

- *Studies assessing cybersecurity awareness among university students.*
- *Systematic reviews on human behavior and cybersecurity frameworks.*



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