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01

INTRODUCTION



Introduction



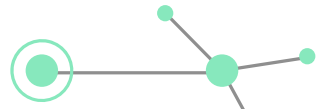
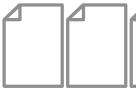
Importance of cybersecurity education for youth.



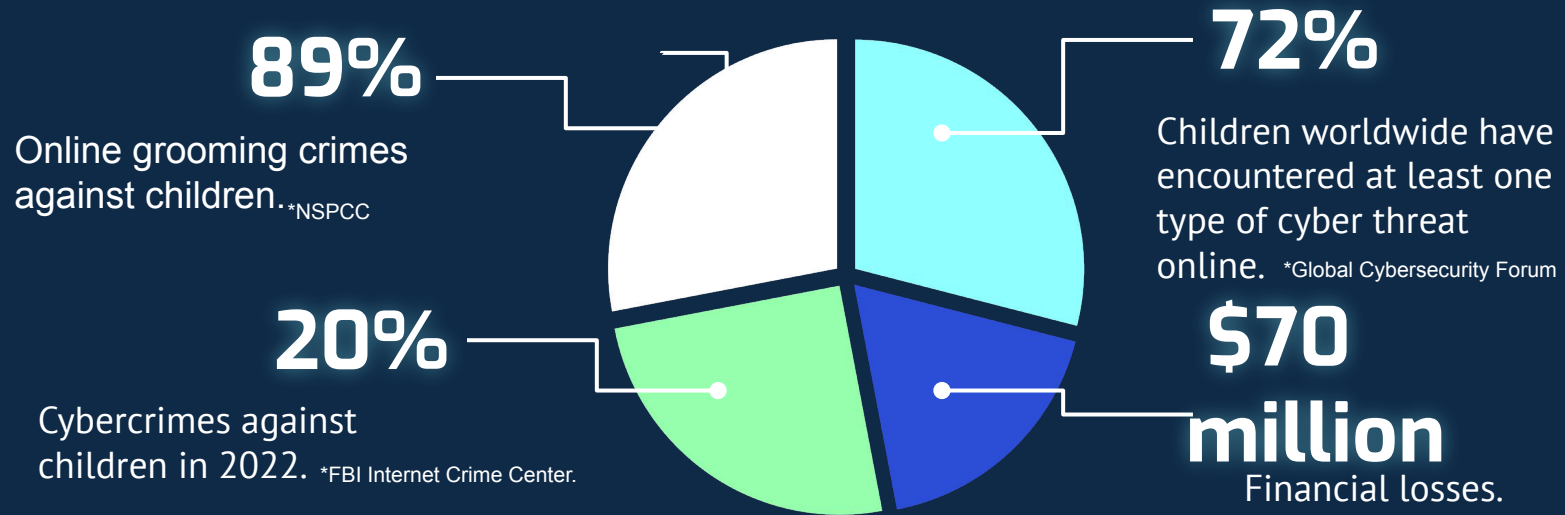
Rising cyber risks for young users



Current state of cybersecurity education



Rising Cyber Risks for Young Users



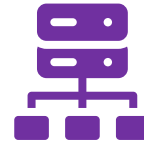
*National Crime Agency (NCA)

PROBLEM VS. SOLUTION



Problem

Successful integration cybersecurity into schools requires teachers proficient in cybersecurity concepts, yet many educators lack the resources, specialized knowledge, and training necessary to teach these skills effectively.



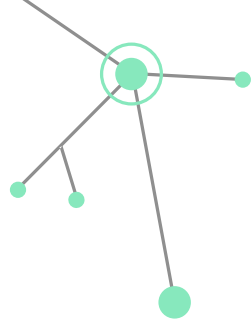
Solution

How do secondary school teachers recommend integrating cybersecurity into the curriculum, and what factors influence their approach?

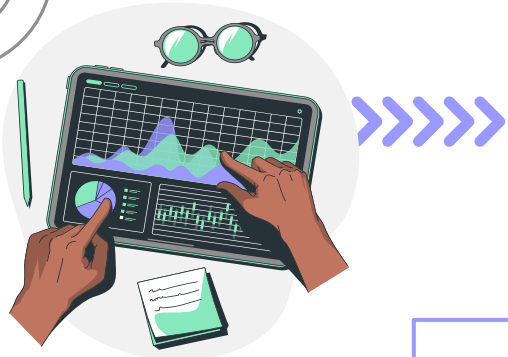


Purpose

Examine how cybersecurity is currently taught in Wales and explore how it could be better integrated into the curriculum. We focus on teachers' perspectives and challenges to inform educators, curriculum designers, and policymakers.



Methodology



Research Questions

RQ1

- What cybersecurity topics are currently covered in the secondary school curriculum?

RQ2

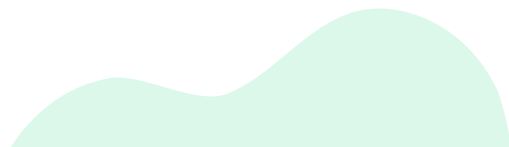
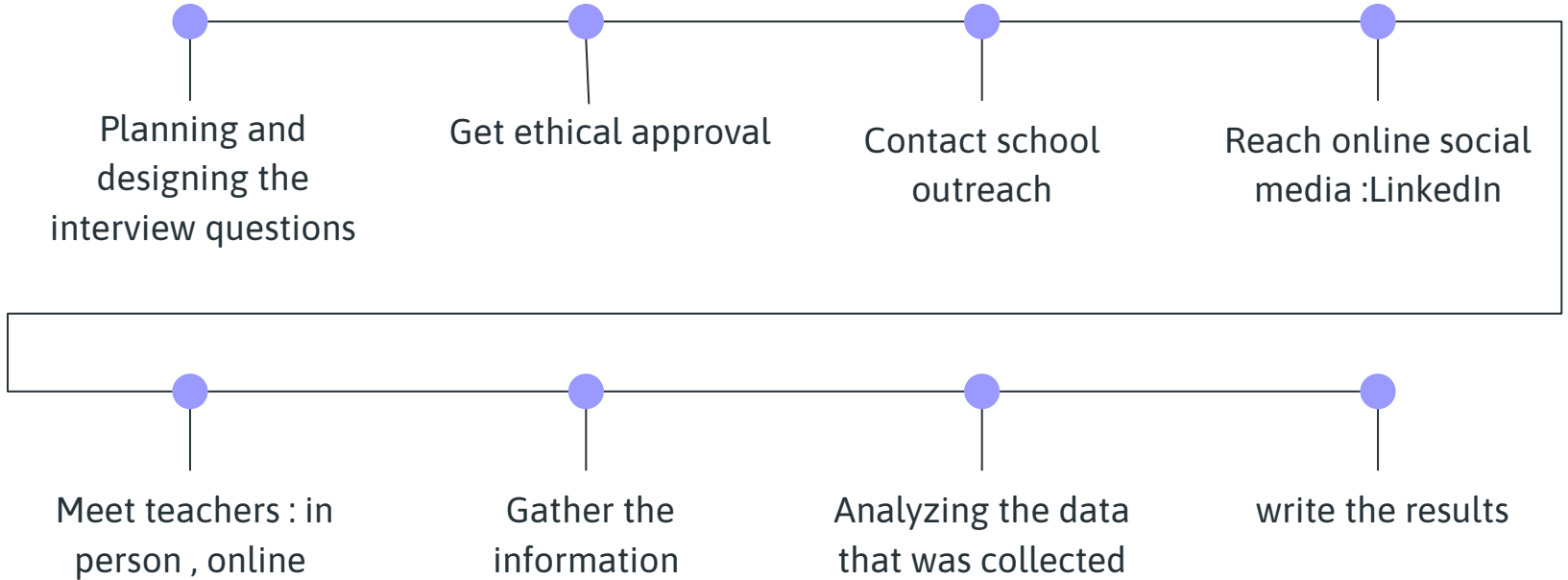
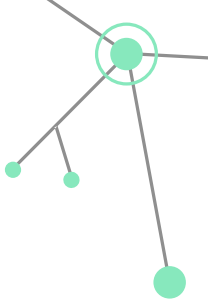
- How do secondary school teachers recommend integrating cybersecurity into the curriculum, and what factors influence their chosen approach?

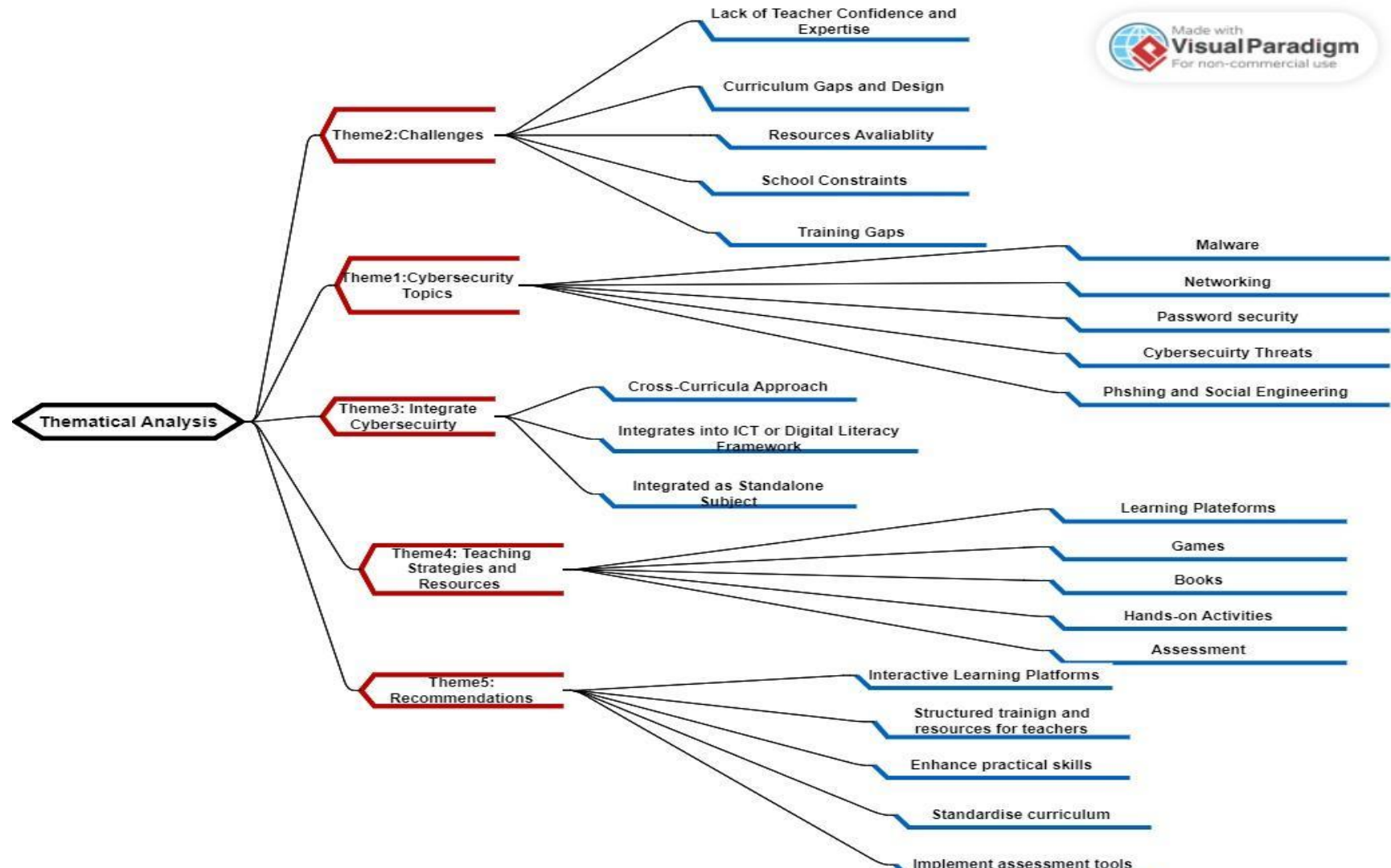
RQ3

- What are the specific barriers teachers encounter when integrating cybersecurity education into the secondary curriculum in Wales?



Conducting The Interview





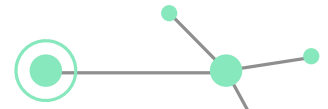
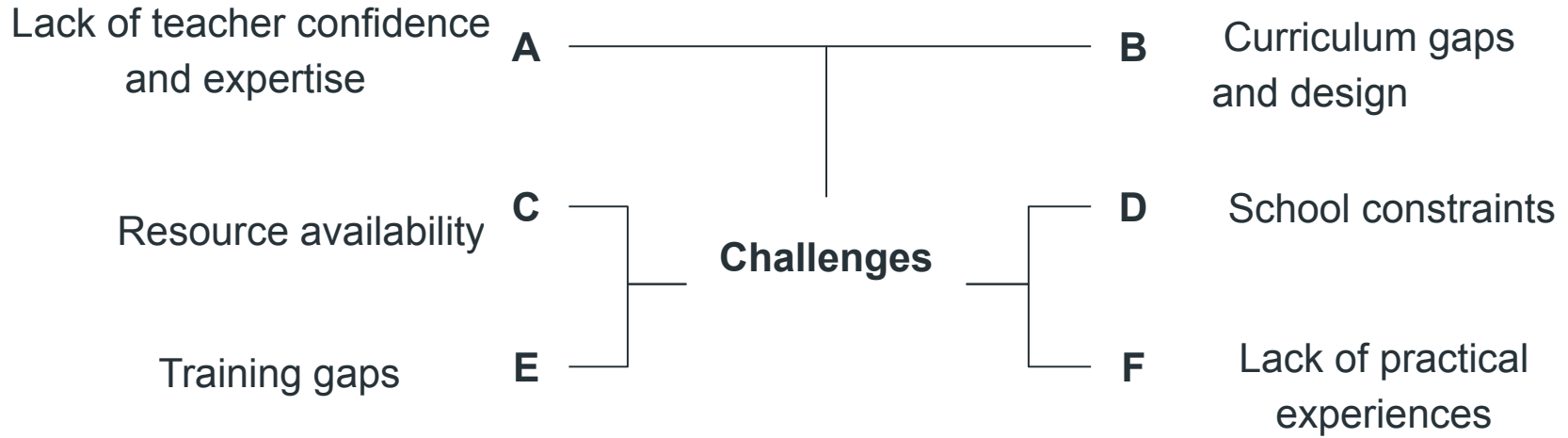
(RQ1) :Cybersecurity topics taught at secondary school

Topics	Number of Teachers Wanting to Teach	Percentage of Teachers Wanting to Teach	Comparison	Quote
Malware	19	70. %	Highest interest among all topics	<i>"We need to teach what the threats are out there and the prevention methods already available." (T1)</i>
Networking	15	55. %	Strong emphasis on understanding network security	<i>"We talk about networks and general security, including how to protect your network physically." (T10)</i>
Password Security	16	59.3%	Strong emphasis on foundational security	<i>"Every pupil needs to understand the basics of having a secure password or using a password manager." (T10)</i>
Cybersecurity Threats	15	55.6%	Recognized need for in-depth coverage	<i>"There are not just malicious threats aimed at financial gain; we also need to consider sabotage." (T5)</i>

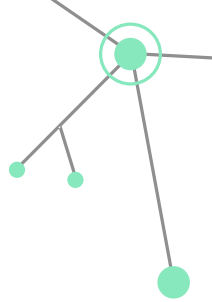
(RQ2) : Integrate cybersecurity into the curriculum

Approach	Description	Support (%)	Quotes
Standalone Subject	Cybersecurity is taught as a separate subject, focusing specifically on its principles and practices.	45%	<i>"I think it would be important enough to be standalone." (T25)</i> <i>"I like to teach it as a separate topic." (T19)</i>
Cross-Curricular Integration	Cybersecurity concepts are embedded within other subjects (e.g., computer science, math, etc.).	35%	<i>"I think it could be integrated into other subject areas." (T3)</i> <i>"I think it would be nice if it was cross curricula." (T7)</i>
Integrating Cybersecurity into ICT Curriculum or Digital Literacy Framework	Cybersecurity is integrated into a broader digital literacy curriculum that encompasses various skills and knowledge areas.	20%	<i>"I would go more for the digital literacy." (T23)</i> <i>"It needs to fit into the digital competence framework." (T27)</i>

(RQ3) Main challenges of integrating cybersecurity education into the secondary curriculum



Discussion



Diverse Perspectives on Integration.

Teachers from technical (ICT/computer science) and non-technical backgrounds have varied opinions on integrating cybersecurity, with technical teachers favoring a standalone subject and non-technical teachers preferring cross-curricular integration.



Challenges in Curriculum and Training

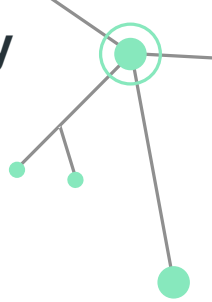
Teachers report insufficient professional development, the research findings emphasize the need for targeted cybersecurity training.



Barriers to Effective Cybersecurity Education

Common obstacles include a lack of confidence, limited training opportunities, and a curriculum that lacks practical application, aligning with broader educational challenges highlighted in literature.

The challenges associated with curriculum design in cybersecurity education.



Practical Application

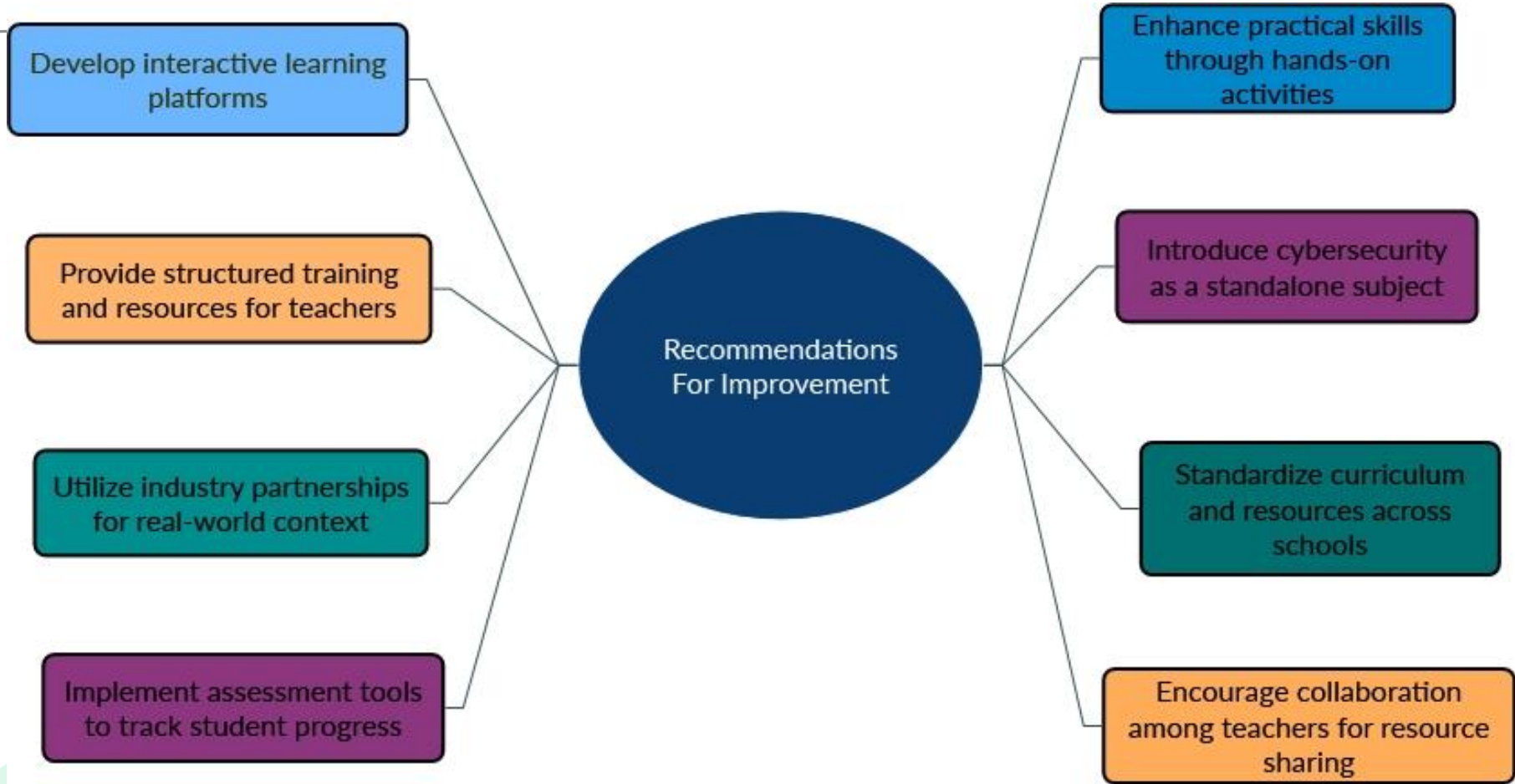
Lack of Resources



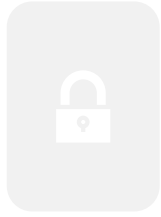
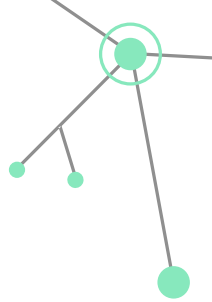
Assessment of Skills

Training and Professional
Development

Recommendations



Conclusion



Importance of Cybersecurity Education

Support from Cybersecurity Experts



Flexible Curriculum Design Needed

Ongoing Training for Teachers



Significant Barriers

Preparing All Students for the Digital World

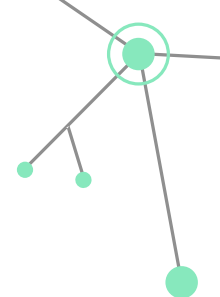


Thanks!

Do you have any questions?
AlotaibiM11@cardiff.ac.uk



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[1] Global Cybersecurity Forum, "72% of children globally have been victims of cyber threats," Cyber Magazine. Available: <https://cybermagazine.com>.

[2] FBI Internet Crime Center, "20% increase in cybercrimes against children in 2022," Cybernews. Available: <https://cybernews.com>.

[3] National Society for the Prevention of Cruelty to Children (NSPCC), "Average of 90 cybercrimes against children daily in England and Wales," January 2020. Available: <https://nspcc.org.uk>.

[4] (NCA), "Protecting the public from serious and organised crime." Available: <https://www.nationalcrimeagency.gov.uk/news/one-in-five-childrenfound-to-engage-in-illegal-activity-online>. February 15, 2024. [Accessed: June 7, 2024].