

Deprived teens with poor learning skills at greatest risk from email scams, says expert

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Disadvantaged teenagers are at greater risk of email scams and need better protection, according to an international study published in the *British Journal of Educational Studies*.

Findings based on more than 170,000 students aged 15 show that one in

five from [low-income families](#) or deprived areas could fall victim to [phishing](#). This is much higher than the probability for the age group overall. Email scams leave people vulnerable to identity theft, putting [young people](#) at risk of financial fraud and having their savings stripped.

The most vulnerable are those who also have poor learning skills according to the data from 38 countries including the UK, US and Japan.

Furthermore, the study highlights that students who are taught about the dangers of digital fraud are just as likely to respond inappropriately to these emails as pupils who have received no specific education on the topic.

Author Professor John Jerrim says this highlights a gap in education provision. He is now urging schools to provide more and better-quality teaching on how to recognize online harms including phishing emails.

"Socio-economically disadvantaged groups are, at least in some countries, at greater risk from [phishing attacks](#) than their more advantaged peers," says Professor Jerrim from University College London in England. "This is largely driven by socio-economic differences in cognitive abilities. Unfortunately, current attempts by schools to address this issue do not seem to be particularly effective.

"Teenagers taught in the classroom about the risks appear to be just as likely to take inappropriate action. More needs to be done to help young people navigate what is becoming an increasingly complex and dangerous online world. This is particularly true for some of the most vulnerable groups, who are most at risk of falling for attempts at digital fraud."

More than 3 billion spam emails are sent every day, and phishing is one of the most common attempts at cyber fraud. Current research into who

is most susceptible to this crime tends to focus on older people, not [school-age children](#). Little is known about the efficacy of schools' attempts to teach young people how to recognize and react appropriately.

Data for this study was based on 176,186 children who took part in the 2018 Programme for International Assessment (PISA), a triennial survey run by the Organisation for Economic Co-operation and Development (OECD). PISA examines what students in OECD countries know in reading, science, and mathematics. Pupils must complete a two-hour ability test, then a questionnaire.

The 2018 PISA asked pupils how they would respond to a made-up scenario where a mobile-phone company told them via [email](#) they had won a smartphone. The sender asked them to click a link and fill out their data to claim the phone.

Possible responses included answering the email to request more details, checking the sender's email address, clicking on the link, and filling out the form as soon as possible. Professor Jerrim's study focused on answers to the third response and asked pupils if they had been taught how to detect phishing or spam emails.

Results showed that Japanese teens were least likely to respond (4%) to the email; lower than anywhere else in the world. The proportion in Denmark, Sweden and Finland who responded was significantly lower (6-7%) than in other developed countries. Teenagers in Mexico (30%) and Chile (27%) were most at risk—almost a quarter were likely to respond. The figure for the UK was 9%.

No gender difference was found—boys were just as likely to respond as girls. However, [teenagers](#) from socio-economically disadvantaged backgrounds were markedly more likely to click the link.

The biggest gap was based on cognitive skill with a quarter of low achieving students saying they believed clicking was the appropriate response. This compared with only 5% of those in the top reading scores.

The study also investigated whether students who receive instruction from their school about the dangers of [phishing emails](#) are at lower risk of being fooled, but results showed "no clear evidence" that students who received instruction from their school on phishing email dangers were at less risk.

Limitations of the study included the fact it is based on responses to survey questions. Professor Jerrim said this meant the research did not necessarily capture how teenagers would respond in real life.

More information: Who responds to phishing emails? An international investigation of 15-year-olds using PISA data, *British Journal of Educational Studies* (2023). [DOI: 10.1080/00071005.2023.2234456](#)

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