*CONFERENCE PROCEEDING*

# Cryptography Exposure Among Secondary School Students

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## ABSTRACT

Cryptographic methods of protecting information have recently become the basis for ensuring information security in almost all areas of public life. In this regard, there is a constant need for young talented personnel in this field of science. They could give a new impulse to its development, as well as provide a connection of cryptography with other areas of knowledge. Therefore, this study has been done to identify the awareness among secondary school students towards the concept of cryptography. This study has been conducted through a purposive and convenient sampling method among Kolej GENIUS Insan students via an online survey. The age of the students involved is between 12 and 17 years old. Based on the survey that has been held, the result showed 51.9% of students know about cryptography and 48.1% do not know about it. It can be concluded that cryptography has low exposure among secondary school students. Therefore, a lot of cryptography exposure programs need to be held among secondary students to increase their awareness of cryptography.

**Keywords:** *Cryptography, Cybersecurity, Education*

## INTRODUCTION

Cryptography, which requires a particular algorithm, allowed parties to secure the privacy of data between two parties that involved transmission data between each other, increase data security and preventing it from being accessed by unauthorized parties (Atan & Kadir, 2020). This can assist in protecting the confidentiality of data and decrease the chance of it being interfered with by unauthorized parties (Maqsood *et al.*, 2017). The theory of cryptography has been taught to university students, which is a challenging task due to the lack of knowledge in mathematical concepts (Alghamdi & Younis, 2021). Furthermore, students are uninterested in learning cryptography because it is complicated to understand (Atan & Kadir, 2020). The awareness about the application and usage of cryptography must be introduced to young generations because its application is important and will be beneficial use for the future in data and telecommunications (Atan & Kadir, 2020). They need to be exposed to this field so that they can continue researching and advancing the current cryptography system. Throughout this way, the security of information can be maximized. This paper provides an overview of secondary school students' exposure to cryptography.

## MATERIALS AND METHODS/ METHODOLOGY

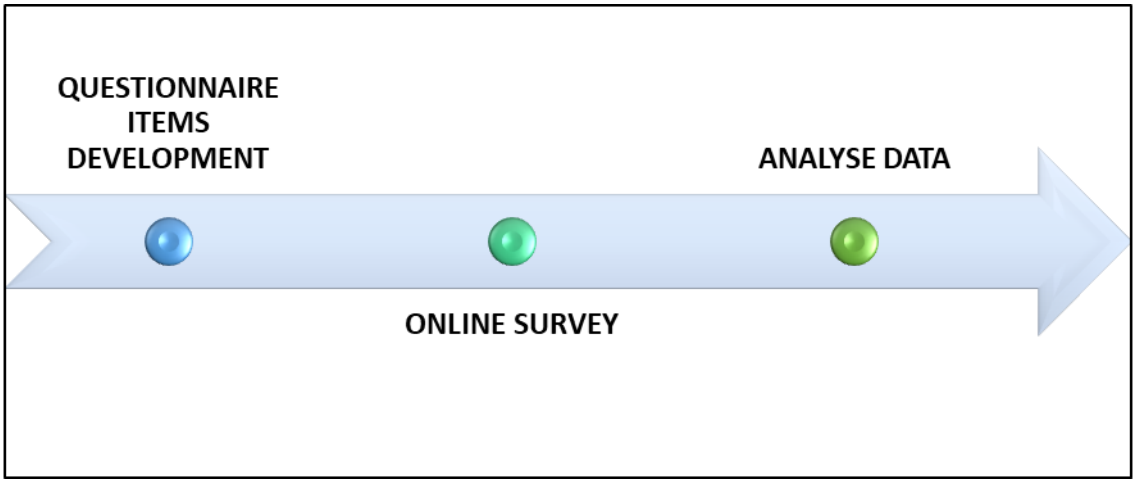


**Figure 1.** Flowchart of Methodology

This study has been done with three phases that shown in Figure 1. The first phase is questionnaire items which consist of three questions specifically about the knowledge on cryptography. The questions are arranged in order and selection answers are provided. The online survey has been done in the second phase by distributed among Kolej GENIUS Insan students age from 12 to 17 years old. The method used during this survey is purposive and convenient sampling. In the third phase, the data collected from the online survey has been analyzed.

## RESULTS AND DISCUSSION

This questionnaire was answered by 104 Kolej GENIUS Insan students. According to the data, there are 38 students aged 13 years, 21 students aged 14 years, 14 students aged 15 years, 18 students aged 16 years, and 13 students aged 17 years. Based on gender, this survey has been participated by a female student. It is shown in Figure 2 (a) and Figure 2 (b).

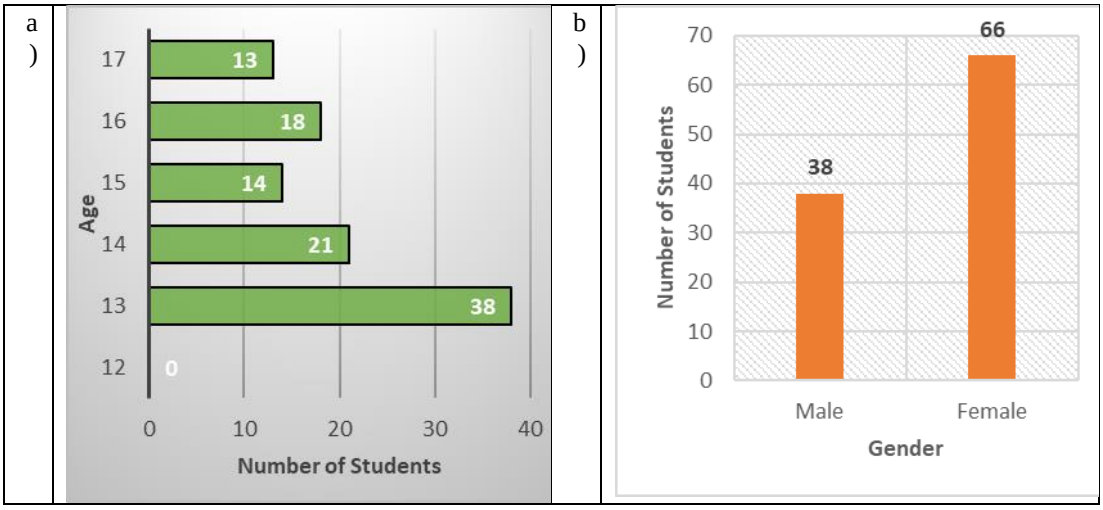


**Figure 2**. Student population by a) age and b) gender

Figure 3 illustrates the knowledge of the students about cryptography. It is shown that that 51.9% of students are familiar with the term cryptography, whereas 48.1% are unfamiliar.

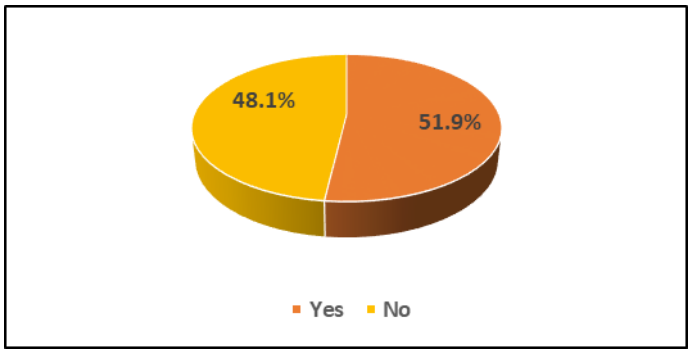


**Figure 3.** Percentage of Student Knowledge Towards Cryptography

## CONCLUSION

This study can be concluded that cryptography is not well-known among secondary students. Cryptography modules must be conducted and provide them a comprehension of cryptography to increase their knowledge. Students should also realize the importance of cryptography that is being used in real life.

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