The Influence Of The Teacher’s Digital Citizen Skills On Secondary School Students In The Eastern Region Of Thailand

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Abstract
The objectives of this research were to 1) study the teacher’s digital citizen skills level, 2) study the secondary school students’ digital citizenship development level, and 3) study the influence of the teacher’s digital citizen skills on secondary school students’ digital citizenship development level in the Eastern Region of Thailand. This research was quantitative research. Samples of this research were 92 teachers, from the Krejci-Morgan samples table, who are teaching in secondary schools in the Eastern Region of Thailand. A stratified sampling method was conducted, using province as the criterion. The research instrument was a 5 rating scale questionnaire. The statistical methods used in this research were Mean, S.D., and Multiple Regression analysis. The research results were that
1) The teacher’s digital citizen skills level overall was at a high level, which Cyberbullying management, critical thinking, and privacy management skills being the first 3 skills assessed at the highest level. 2) the secondary school students’ digital citizenship development level was at the most development level, which digital citizen identity, digital empathy, and privacy management being the first 3 skills developed at the high level. And 3) Teachers’ digital citizen skills; cybersecurity management and digital empathy skills influenced the digital citizenship development of secondary school students in the Eastern Region of Thailand with an effective forecasting coefficient of 30.1% (R² = 0.301). Linear equations for forecasting the development of students’ digital citizenship were “.298 + .388 (teachers’ cybersecurity management) +.435 (Teachers’ digital empathy).

Keywords: Digital Citizen Skill, Digital Citizenship, Students’ Digital Citizenship Development

1. Introduction
The rapid changes in technology in the world caused Thailand to set up Thailand 4.0 strategy [8] aiming to develop the country under the changes in the 21st century on the basis of developing students to gain digital literacy skills [12], and to develop economic, social, political, and education systems with digital technology at high speed [4,10].

In Thailand's 5-year digital development plan (2017-2022), to achieve strategic human resources development in the digital age, the development must be a holistic human
resources development [8] where everyone is developed as a member of society [11] in order to enable Thai people to develop Digital Citizen skills on the basis of correct technology behavior [9].

At present times, problems of online or virtual youth living seem to be increasing continuously with defraud, propaganda, insults, slander, or cyberbullying [7] as well as the behavior of using the internet access to non-useful online media, using online media for too long, lack of interaction with those around him/her, and occupy violent aggressive behavior [2]. This shows the problem of the lack of digital citizenship among students or youths [9].

Creating students’ digital citizenship is urgently needed. A number of secondary schools in Thailand, especially secondary schools in the Eastern Region which is the main region of the special economic zone of Thailand (Eastern Economic Corridor-EEC), therefore, many activities to develop digital citizenship of students are arranged [1].

The secondary school students’ digital citizenship development has aimed to create 8 major learning experiences; 1) the ability to create and manage their own identity on online, 2) the ability to operate any digital device or media effectively in the digital world, 3) the ability to manage risks in the digital world, 4) The ability to check and protect various types of cyber attacks, 5) The ability to use digital to build strong relationships with others on the online world, 6) the ability to communicate with others through technology and digital media, 7) the ability to access, analyze, classify, share, and create creative content, and 8) the ability to understand and protect personal rights [5].

The secondary school students’ digital citizenship development has been operated by teachers for periods of time, in order to assess their performances and teachers’ digital skills. The researchers see the necessity to study the influence of the teacher’s digital citizen skills on secondary school students’ digital citizenship development level in the Eastern Region of Thailand. The research results will be beneficial for teachers, school administrators, and other stakeholders in educational development. The Thailand digital development will be assessed whether the Thailand 4.0 strategic plan is successful. Information from the research will be managed to further increase Thai digital citizenship.

2. Research objectives

2.1. To study the teacher’s digital citizen skills level in the Eastern Region of Thailand,
2.2 To study the secondary school students’ digital citizenship development level in the Eastern Region of Thailand, and
2.3 To study the influence of the teacher’s digital citizen skills on secondary school students in the Eastern Region of Thailand.

3. Research Methodology

3.1 Population and Samples
This research was quantitative research.

The population of this research is 120 teachers who are teaching and managing activities to develop students’ digital citizenship in secondary schools in the Eastern Region of Thailand.

The samples of this research are 92 teachers, from the Krejci-Morgan samples table, who are teaching and managing activities to develop students’ digital citizenship in secondary schools in the Eastern Region of Thailand, A stratified sampling method was conducted, using province as the criterion.

3.2 Research Variables
1. Independent variables

The Independent variable is the influence of the teacher’s digital citizen skills on secondary school students in the Eastern Region of Thailand (Park, 2016) which are comprised of 8 skills; 1) Digital Citizen Identity, 2) Screen Time Management, 3) Cyberbullying Management, 4) Cybersecurity Management, 5) Privacy Management, 6) Critical Thinking, 7) Digital footprint, and 8) Digital Empathy.

2. Dependent variables

The dependent variable was the secondary school students’ digital citizenship development in 8 skills (Park, 2016); 1) Digital Citizen Identity, 2) Screen Time Management, 3) Cyberbullying Management, 4) Cybersecurity Management, 5) Privacy Management, 6) Critical Thinking, 7) Digital footprint, and 8) Digital Empathy.

3.3 Research instrument and Statistical methods

The research instrument was a questionnaire, constructed by the researchers, with a discrimination power between .392 - .885 and a reliability of .87.

The statistical methods used in this research are Mean, Standard Deviation, and Multiple Regression analysis.

This research was conducted between October 2019 – March 2019.

4. Research Results

The research results are as the followings:

4.1. The teacher’s digital citizen skills level in the Eastern Region of Thailand is shown in Table 1.

<table>
<thead>
<tr>
<th>Digital citizen skills</th>
<th>Mean</th>
<th>S.D.</th>
<th>Ability Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Digital Citizen Identity</td>
<td>4.141</td>
<td>.6390</td>
<td>High</td>
</tr>
<tr>
<td>2. Screen Time Management</td>
<td>4.101</td>
<td>.6245</td>
<td>High</td>
</tr>
<tr>
<td>3. Cyberbullying Management</td>
<td>4.340</td>
<td>.5888</td>
<td>High</td>
</tr>
<tr>
<td>4. Cybersecurity Management</td>
<td>4.081</td>
<td>.7042</td>
<td>High</td>
</tr>
<tr>
<td>5. Privacy Management</td>
<td>4.184</td>
<td>.6277</td>
<td>High</td>
</tr>
<tr>
<td>6. Critical Thinking</td>
<td>4.267</td>
<td>.5604</td>
<td>High</td>
</tr>
<tr>
<td>7. Digital footprint</td>
<td>4.038</td>
<td>.7080</td>
<td>High</td>
</tr>
<tr>
<td>8. Digital Empathy</td>
<td>4.179</td>
<td>.6138</td>
<td>High</td>
</tr>
<tr>
<td>Total</td>
<td>4.184</td>
<td>.5144</td>
<td>High</td>
</tr>
</tbody>
</table>

From Table 1, the teacher’s digital citizen skills level overall was at a high level (4.184). When considering each skill, every skill was at a high level as well; Cyberbullying Management (4.340), Critical Thinking (4.267), Privacy Management (4.184), Digital Empathy (4.179), Digital Citizen Identity (4.141), Screen Time Management (4.101), Cybersecurity Management (4.081), and Digital footprint (4.038).
4.2. The secondary school students’ digital citizenship development in 8 skills.

The development of secondary school students’ digital citizenship in the eastern region of Thailand is shown in Table 2.

Table 2: The development of secondary school students’ digital citizenship in the eastern region of Thailand (n=92)

<table>
<thead>
<tr>
<th>Digital Citizenship Skills Development</th>
<th>mean</th>
<th>S.D.</th>
<th>Development Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Digital Citizen Identity</td>
<td>3.876</td>
<td>.8220</td>
<td>High</td>
</tr>
<tr>
<td>2. Screen Time Management</td>
<td>3.594</td>
<td>1.010</td>
<td>High</td>
</tr>
<tr>
<td>3. Cyberbullying Management</td>
<td>3.677</td>
<td>.9511</td>
<td>High</td>
</tr>
<tr>
<td>5. Privacy Management</td>
<td>3.702</td>
<td>.9343</td>
<td>High</td>
</tr>
<tr>
<td>6. Critical Thinking</td>
<td>3.680</td>
<td>.9949</td>
<td>High</td>
</tr>
<tr>
<td>7. Digital footprint</td>
<td>3.603</td>
<td>.9736</td>
<td>High</td>
</tr>
<tr>
<td>8. Digital Empathy</td>
<td>3.826</td>
<td>.9241</td>
<td>High</td>
</tr>
<tr>
<td>Total</td>
<td>3.698</td>
<td>.8825</td>
<td>High</td>
</tr>
</tbody>
</table>

From Table 2, The development of secondary school students’ digital citizenship in the eastern region of Thailand overall was at a high level (3.698). When considering each skill, every skill was developed at a high level as well; Digital Citizen Identity (3.876), Digital Empathy (3.826), Privacy Management (3.702), Critical Thinking (3.680), Cyberbullying Management (3.677), Cybersecurity Management (3.619), Digital footprint (3.603), and Screen Time Management (3.594).

4.3. The influence of the teacher’s digital citizen skills on secondary school students’ digital citizenship development level in the Eastern Region of Thailand.

The influence of the teacher’s digital citizen skills on secondary school students’ digital citizenship development in the Eastern Region of Thailand was shown in Table 3, analyzed by Multiple Regression analysis.

Table 3: The Multiple Regression analysis of the influence of the teacher’s digital citizen skills on secondary school students’ digital citizenship development in the Eastern Region of Thailand.

<table>
<thead>
<tr>
<th>Independent Variable (Forecasting Variable)</th>
<th>b</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>D Teachers’ Cybersecurity Management</td>
<td>.388</td>
<td>.309</td>
<td>2.773</td>
<td>.007</td>
</tr>
<tr>
<td>H Teachers’ Digital Empathy</td>
<td>.435</td>
<td>.302</td>
<td>2.710</td>
<td>.008</td>
</tr>
<tr>
<td>Constant</td>
<td>.298</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R = 0.549  R² = 0.301  F = 19.153  p value <0.000

From Table 3: 2 teachers’ digital citizen skills (Cybersecurity Management skills and Digital Empathy skills) have influenced secondary school students’ digital citizenship development in
the Eastern Region of Thailand positively with statistical significance at the .01 level, Cybersecurity Management skills (β = 0.309), and Digital Empathy skills (β =0.302).

Teachers’ digital citizen skills; cybersecurity management and digital empathy skills influenced the digital citizenship development of secondary school students in the Eastern Region of Thailand with an effective forecasting coefficient of 30.1% (R² = 0.301).

The forecasting equations were as follows:

The forecasting linear equation for the development of students’ digital citizenship from the raw data was

\[
\hat{Y} = .298 + .388 \text{ (teachers’ cybersecurity management)} + .435 \text{ (Teachers’ digital empathy)}.
\]

Others skills were not influenced.

The forecasting equation for the development of students’ digital citizenship from the standard data can be written as follows;

\[
\hat{Z} = .309 \text{ (Teachers’ Cybersecurity Management)} + .302 \text{ (Teachers’ digital empathy)}.
\]

5. Research Conclusion

The research results were as followings:

1. The teacher’s digital citizen skills level.

The research result was shown that the teacher’s digital citizen skills level overall and every skill were at a high level. The top 3 skills were Cyberbullying Management, Critical Thinking, and Privacy Management. The bottom 3 skills were Screen Time Management, Cybersecurity Management, and Digital footprint.

2. The development of secondary school students’ digital citizenship in the eastern region of Thailand.

The research result was shown that the development level of secondary school students’ digital citizenship in the eastern region of Thailand overall and in every aspect were at a high level. The top 3 skill development were Digital Citizen Identity, Digital Empathy, and Privacy Management. The bottom 3 skill development were Cybersecurity Management, Digital footprint, and Screen Time Management.

3. The influence of the teacher’s digital citizen skills on secondary school students’ digital citizenship development level in the Eastern Region of Thailand.

The research result was shown that: 2 teachers’ digital citizen skills (Cybersecurity Management skills and Digital Empathy skills) have influenced secondary school students’ digital citizenship development in the Eastern Region of Thailand positively with statistical significance at the .01 level, Cybersecurity Management skills (β = 0.309), and Digital Empathy skills (β =0.302).

An effective forecasting coefficient was 30.1% (R² = 0.301).

The forecasting linear equation for the development of students’ digital citizenship from the raw data was

\[
\hat{Y} = .298 + .388 \text{ (teachers’ cybersecurity management)} + .435 \text{ (Teachers’ digital empathy)}.
\]

6. Discussion

Considering an effective forecasting coefficient of 30.1%, 2 teachers’ digital citizen skills (Cybersecurity Management skills and Digital Empathy skills) have influenced secondary school students’ digital citizenship development in the Eastern Region of Thailand. Others skills were not influenced. This meant that teachers’ digital citizen skills can develop 30.1% of students’ digital citizenship. Therefore schools have to determine other issues or strategies,
such as an education model that is lifelong learning, an adaptation of youth to contemporary people in the digital age, acceptance of individual differences as well as the differences of diverse cultures, etc. [6].

7. Recommendations

7.1 Recommendations for applying the research results are as follows: From the research result, the least development of secondary school students were cybersecurity management, digital footprint, and screen time management. Those are important for safe living in a digital world, both detecting and preventing cyber threats, managing own online reputation in the short and long term, and operating any digital device or media effectively in the online and offline world. Therefore teachers and school administrators need to accelerate awareness raising among students to be safe digital citizens. Many activities can be integrating digital citizenship with teaching and learning in various subjects or integrated with various learning activities.

From the research result, the least digital citizen skills among teachers were screen time management, cybersecurity management, and digital footprint which were similar to the least development aspects of students. Therefore it is important for teachers to raise awareness of how to be a safe digital citizen. Teachers must be aware and try to act as good digital citizens. Teachers must perform to be role models for students as digital citizens, especially in digital footprint skill which is related to managing their own reputation on online both short and long term.

From the research result, teachers’ digital citizen skills (Cybersecurity Management skills and Digital Empathy skills) have influenced secondary school students’ digital citizenship development in the Eastern Region of Thailand. This meant that the higher the cybersecurity management skill and digital empathy skill the higher the digital citizenship development. Teachers are necessary to have self-development in checking and preventing threats in the cyber or digital world. Students can follow teachers’ performance.

7.2 Recommendations for future researching
From the research result, only 2 teachers’ digital citizen skills; cybersecurity management, and digital empathy skills influenced the digital citizenship development of secondary school students in the Eastern Region of Thailand with an effective forecasting coefficient of 30.1%. Researching other aspects or factors which will be influenced secondary school students’ digital citizenship should be conducted in order to increase the effectiveness of forecasting.

8. References


