eCitizen Education 數碼素養 360 2022

Bulletin 2 (July 2023)

New Insights
on Key Factors Impacting Students' Wellbeing and Schools' Online Teaching Calling for Collaboration to Establish a
Digital *New Normal*

It has been three years since the outbreak of COVID-19. The cumulative impact of recurring school suspensions during the multiple waves of the pandemic has propelled different education stakeholders in Hong Kong to tirelessly explore, reflect, and make progress to overcome the challenges.

Led by the Principal Investigator, Dr Cheng Yong Tan, and Co-Investigators, Professor Nancy Law and Professor Catherine K.K. Chan, from The University of Hong Kong (HKU), the current project, e360 (2022), aims to provide a comprehensive picture on how students, parents, schools, and teachers have adapted to the *New Normal* after multiple waves of school suspensions due to the pandemic.

Survey data from school leaders, teachers, students, and parents were collected from July to early September in 2022. In Bulletin 1, we provided up-to-date data on students' learning and wellbeing in 2022 and tracked the changes between 2020 and 2022. Through our research on various educational sectors, which included students, parents, and schools in the *New Normal*, we found that students were more adapted to online learning activities. There was a need to provide support for students' cyber-wellness, particularly for secondary students. Parents also needed more support for digital parenting. Community support was the most positive external factor during the pandemic perceived by school leaders and teachers, and therefore a greater effort should be made to leverage community resources and support for school development.

In this bulletin, we further investigated the key factors influencing students' wellbeing and school online teaching. Recommendations were also provided to empower and foster collaboration among different education stakeholders to support our students, parents, and schools in effectively adapting to the Digital *New Normal*.

Students
Self-regulated learning strategies, digital literacy, and cognitive emotional regulation strategies as facilitating factors for students' wellbeing

Students' socioeconomic status (SES) was a strong predictor

Parents
Parents need a holistic approach in their parenting

The parent-child relationship is key

Schools
Schools' technology usage and positive climate promote teachers' online teaching self-efficacy

An extension of the Learning and Assessment for Digital Citizenship project

More information is available at https://ecitizen.hk/360

Bulletin 1:

Cumulative Impact under the *New Normal* – Insights for Positive Actions

In the [first bulletin](#) of the e360 (2022) project, we reported on the following three findings:

Finding 1

Students' online learning and wellbeing

— Students were more adapted to online learning in 2022

— Students need more support for cyber-wellness, especially for secondary students

Finding 2

Parents and parenting in the *New Normal*

— Parents were most worried about their children's learning

— Parents need support in digital parenting

Finding 3

Schools' adaptations in the *New Normal*

— School-based strategies led to effective adaptation and increased parental involvement in *New Normal*

— Community support perceived as most positive external factor

Bulletin 2:

New Insights on Key Factors Impacting Students' Wellbeing and Schools' Online Teaching Calling for Collaboration to Establish a Digital *New Normal*

In this second (final) bulletin, we report on our investigation to address the following questions:

Q1. What are the key risk and protective factors of students' wellbeing?

Q2. How are different aspects of parenting related to students' wellbeing?

Q3. How do school factors influence teachers' online teaching self-efficacy?

Key constructs

Two students' final outcomes:

- **Wellbeing (mental health):** measures students' views of themselves, emotions, and recent experiences.
- **Online learning self-efficacy:** refers to students' self-evaluation of their abilities to concentrate on online learning, complete online learning tasks, and successfully master e-learning materials.

Six students' intermediate outcomes:

- **Digital literacy:** It was measured using the Digital Literacy Assessment (DLA), developed by the Theme-based Research Scheme project, Learning and Assessment for Digital Citizenship, consisting of five competence areas: information and data literacy, communication and collaboration, digital content creation, safety, and problem solving.
- **Cognitive emotional regulation strategies:** refer to the strategies used by students to deal with negative or unpleasant events; these strategies are categorized into two aspects:
    - **positive** strategies (i.e., refocus on planning and positive reappraisal)
    - **negative** strategies (i.e., catastrophizing and blaming others)
- **Self-regulated learning strategies:** measure how students managed their learning activities using different strategies, namely, help-seeking, self-evaluation, and time management.
- **Cyberbullying experiences:** measure whether or not students experienced different kinds of cyberbullying incidents, including perpetration, victimisation, and being a bystander.
- **Socialization and entertainment using digital media:** measures the extent to which students utilized digital media to perform socialisation and entertainment activities, for example, chatting with friends using different social media platforms, browsing or posting things on social media, playing games, and listening to music.
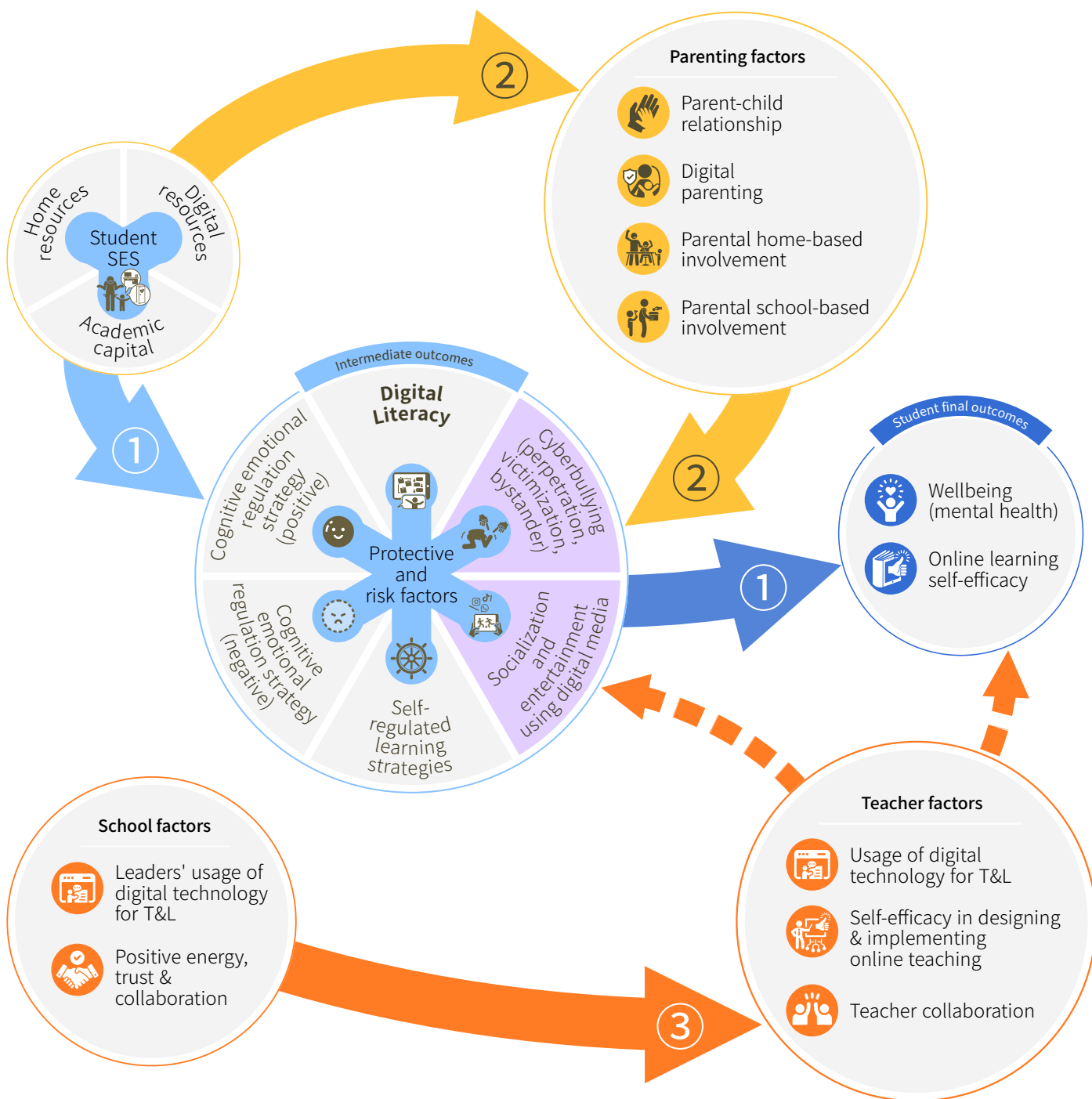
Research design

The conceptual framework that guides our analysis for this bulletin is illustrated in Figure 1. The framework involves four sets of key indicators, namely, parenting factors, students' intermediate and final outcomes (the constructs were listed above), teacher factors, and school factors. Students' wellbeing and learning after multiple waves of school suspension have been influenced by a comprehensive range of factors (or enablers) at the levels of schools and teachers, parents, and students. The questions listed above are examined in three parts as follows.

In Part 1, to identify protective or risk factors for students' wellbeing, we investigated the influence of students' socioeconomic status (SES) on their intermediate outcomes (i.e., cognitive-emotional regulation strategies, self-regulated learning strategies, cyberbullying experiences, socialization and entertainment using digital media, and digital literacy), and how these intermediate outcomes affected their final outcomes (i.e., wellbeing, online learning self-efficacy). In Part 2, we examined how students' SES were related to parenting practices (i.e., parent-child relationship, digital parenting, parental home-based involvement, and parental school-based involvement), as well as the relationship between different aspects of parenting and students' intermediate outcomes. Lastly, in Part 3, we investigated how school factors (i.e., school leaders' usage of digital technology for teaching and learning; positive energy, trust, and collaboration) affected teachers' online teaching self-efficacy, usage of digital technology for teaching and learning, and collaboration.

The research analyses for Part 1 and Part 2 were carried out using multiple-group analyses to enable reliable comparisons between primary and secondary schools. Path analysis was adopted in the analyses to ascertain the relationships between the factors.

Figure 1. Conceptual framework which informs the analysis of this bulletin

Parenting factors
- Parent-child relationship
- Digital parenting
- Parental home-based involvement
- Parental school-based involvement

Student SES
- Home resources
- Digital resources
- Academic capital

Intermediate outcomes

Digital Literacy

Protective and risk factors
- Cognitive emotional regulation strategy (positive)
- Cognitive emotional regulation strategy (negative)
- Self-regulated learning strategies
- Cyberbullying (perpetration, victimization, bystander)
- Socialization and entertainment using digital media

Student final outcomes
- Wellbeing (mental health)
- Online learning self-efficacy

School factors
- Leaders' usage of digital technology for T&L
- Positive energy, trust & collaboration

Teacher factors
- Usage of digital technology for T&L
- Self-efficacy in designing & implementing online teaching
- Teacher collaboration

Note. ①-Part 1, ②-Part 2, ③-Part 3.

Part 1
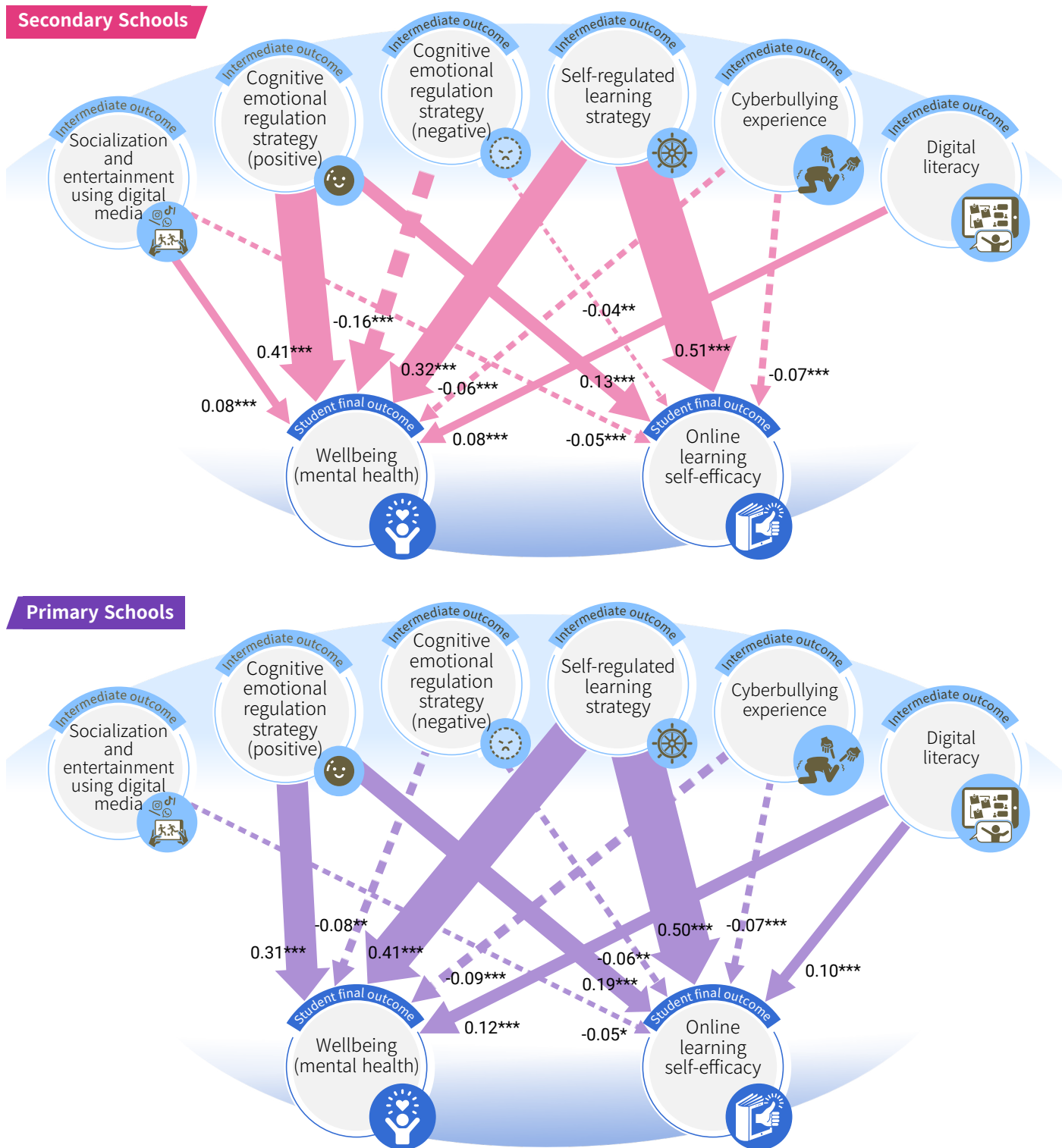## Key Risk and Protective Factors of **Students' Wellbeing**

In this section, we investigated whether and how students' intermediate outcomes indicators were related to their final outcomes (see Figure 2). A further analysis was carried out to gain an in-depth understanding of the risks of cyberbullying and the protective role of digital literacy towards students' wellbeing (see Figure 3). Lastly, we examined how students' SES affected their intermediate outcomes (see Figure 4).

1.1 How students' intermediate outcomes were related to their final outcomes

As shown in Figure 2, students' positive cognitive emotional regulation strategies, self-regulated learning strategies, and digital literacy were common intermediate factors contributing to the *wellbeing (mental health)* of both primary and secondary students. Students' positive cognitive emotional regulation strategies and self-regulated learning strategies were common intermediate factors contributing to the *online learning self-efficacy* of both primary and secondary students. Key insights from this model are as follows:

- Both primary and secondary students who used more negative cognitive emotional regulation strategies or who had more cyberbullying experiences were more likely to have lower levels of wellbeing (mental health).

- For primary students, those with higher levels of digital literacy were more likely to be more self-efficacious in online learning. However, this relationship was not significant for secondary students.

- Secondary students with a higher frequency of socialization and entertainment using digital media were more likely to have better wellbeing (mental health). It implies that in the Digital *New Normal*, secondary students' wellbeing (mental health) is more closely related to their online activities. Thus, instead of reducing digital technology usage, enhancing students' digital literacy is crucial to promote their mental health in the Digital *New Normal*.

Figure 2. Path analysis results of students' intermediate outcomes predicting their final outcomes
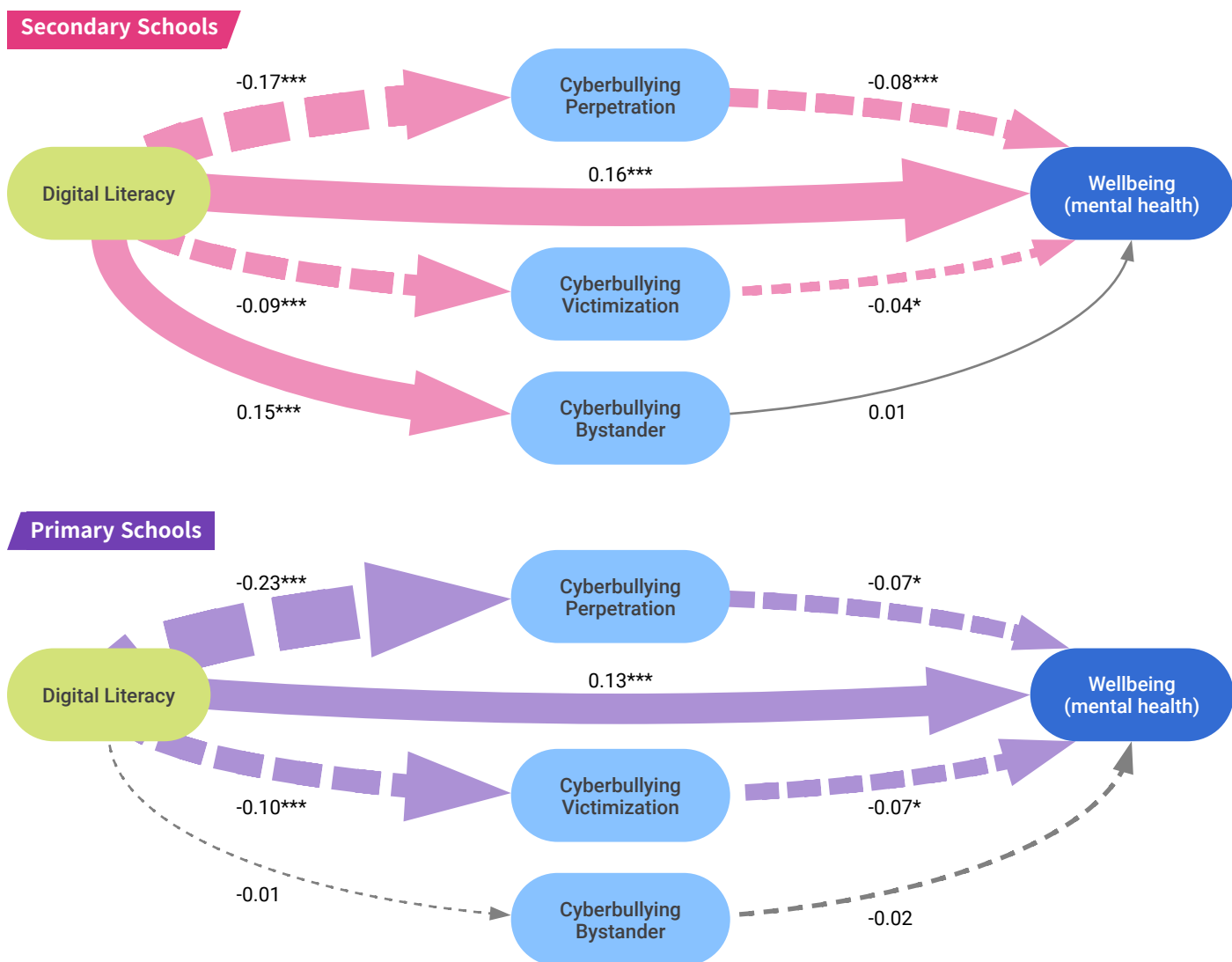

Secondary Schools

Intermediate outcome: Socialization and entertainment using digital media
Intermediate outcome: Cognitive emotional regulation strategy (positive)
Intermediate outcome: Cognitive emotional regulation strategy (negative)
Intermediate outcome: Self-regulated learning strategy
Intermediate outcome: Cyberbullying experience
Intermediate outcome: Digital literacy

-0.16*** -0.04**
0.41*** 0.32*** 0.51***
0.08*** -0.06*** 0.13*** -0.07***
0.08*** -0.05***

Student final outcome: Wellbeing (mental health)
Student final outcome: Online learning self-efficacy

Primary Schools

Intermediate outcome: Socialization and entertainment using digital media
Intermediate outcome: Cognitive emotional regulation strategy (positive)
Intermediate outcome: Cognitive emotional regulation strategy (negative)
Intermediate outcome: Self-regulated learning strategy
Intermediate outcome: Cyberbullying experience
Intermediate outcome: Digital literacy

-0.08** 0.50*** -0.07***
0.31*** 0.41*** -0.06**
-0.09*** 0.19*** 0.10***
0.12*** -0.05*

Student final outcome: Wellbeing (mental health)
Student final outcome: Online learning self-efficacy

Note. *p < .05; **p < .01; ***p < .001. No line between variables indicates non-significance. Dashed lines indicate negative relationships.

1.2 Protective role of digital literacy

We next explored whether digital literacy could promote students' wellbeing (mental health) and whether digital literacy could protect students from cyberbullying so that they have better wellbeing (mental health). Results are shown in Figure 3.

Figure 3. Students' digital literacy, cyberbullying experiences, and wellbeing (mental health)

Secondary Schools

Digital Literacy → -0.17*** → Cyberbullying Perpetration → -0.08*** → Wellbeing (mental health)

Digital Literacy → 0.16*** → Wellbeing (mental health)

Digital Literacy → -0.09*** → Cyberbullying Victimization → -0.04* → Wellbeing (mental health)

Digital Literacy → 0.15*** → Cyberbullying Bystander → 0.01 → Wellbeing (mental health)

Primary Schools

Digital Literacy → -0.23*** → Cyberbullying Perpetration → -0.07* → Wellbeing (mental health)

Digital Literacy → 0.13*** → Wellbeing (mental health)

Digital Literacy → -0.10*** → Cyberbullying Victimization → -0.07* → Wellbeing (mental health)

Digital Literacy → -0.01 → Cyberbullying Bystander → -0.02 → Wellbeing (mental health)

Note. *p < .05; **p < .01; ***p < .001. Dashed lines indicate negative relationships.

Higher levels of digital literacy were associated with better wellbeing for both primary and secondary students. Although experiencing cyberbullying had negative impacts on students' wellbeing, digital literacy, as a key protective factor, could protect students from cyberbullying perpetration and victimization and thus promote their wellbeing. In addition, the finding that higher digital literacy among secondary school students was associated with more bystander experiences may be due to older students' increased use of the Internet and awareness of cyberbullying.

1.3 How SES affected students' intermediate outcomes

Students' measure of SES was obtained using an item response theory (IRT) model and it is composed of the following three sets of indicators:

- **Academic capital:** the potential academic support available to students at home (i.e., parents' education levels and the number of books in their home).
- **Home resources:** students' possession of learning resources that can facilitate learning, such as a desk, own personal room, or a quiet place to study at home.
- **Digital resources:** the extent to which the students had access to digital devices and the Internet at home.

We found that students' SES positively contributed to their positive cognitive emotional regulation strategies, self-regulated learning strategies, and digital literacy, in both primary and secondary schools (see Figure 4). Primary students with higher SES were more likely to have fewer cyberbullying experiences. Secondary students with higher SES were more likely to have more socialization and entertainment activities online.

Figure 4. Path analysis results of students' SES predicting their intermediate outcomes
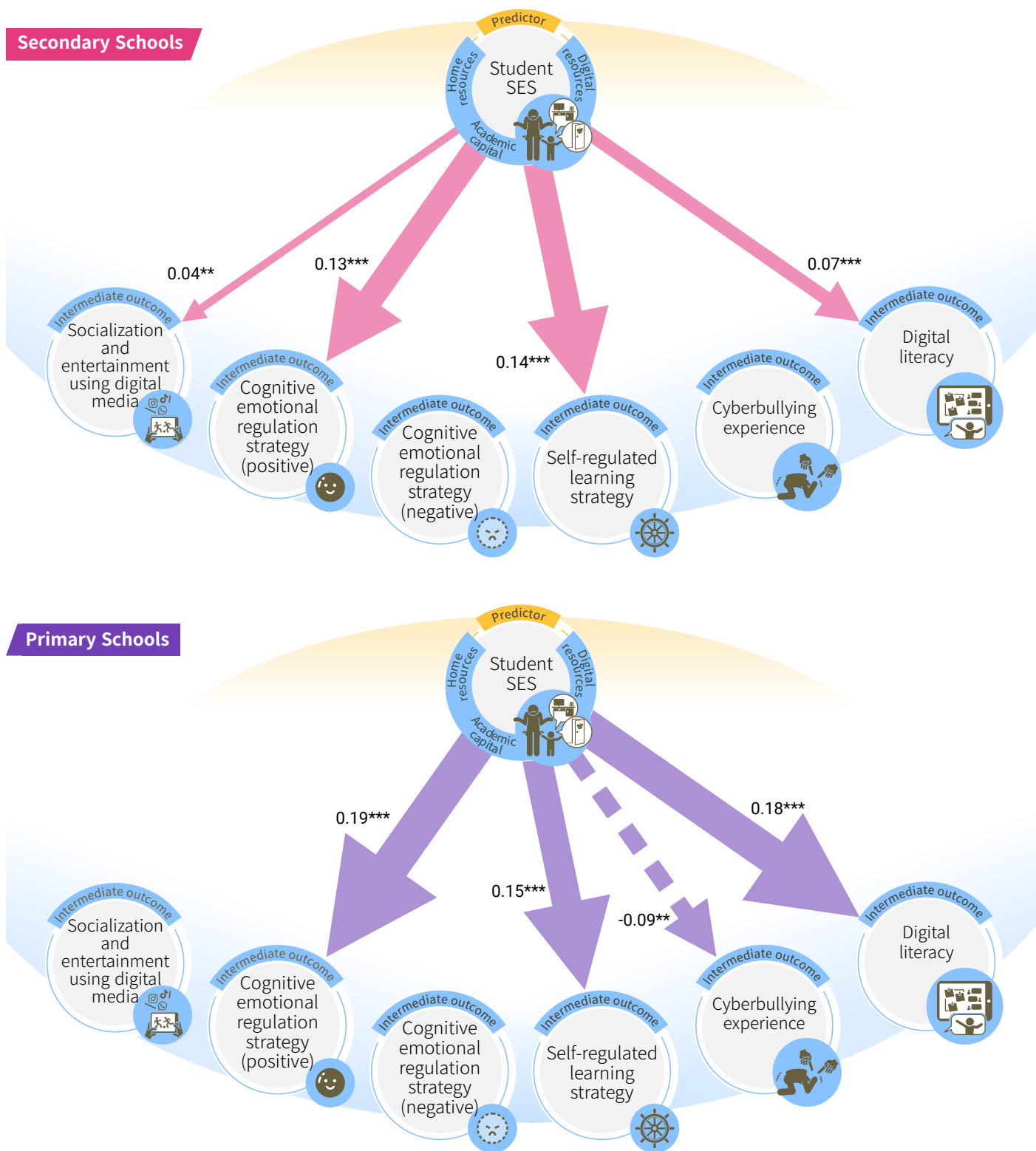
Note. *$p < .05$; **$p < .01$; ***$p < .001$. No line between variables indicates non-significance. Dashed lines indicate negative relationships.

To examine whether and how parenting practices are associated with students' intermediate outcomes, we conducted path models on the matched student and parent survey data to investigate the relationships between four parenting practices and six students' intermediate outcomes.

The four indicators of parenting practices from the parent survey include:

- **Parent-child relationship:** measures the closeness of the relationships between parents and their children, including parents' perceptions of their children's feelings, learning at school, and the frequency of sharing daily lives.
- **Digital parenting:** refers to the extent to which parents empower their children to be good digital citizens who can minimize online risks and maximize potential in the digital world, including different aspects related to family media boundaries, knowledge of utilizing technology, and consistency in parenting practices.
- **Parental home-based involvement:** measures parents' different aspects of parental involvement at home, including the extent to which parents help their children at home, monitor children's activities and behaviors, and parent-child communication.
- **Parental school-based involvement:** measures parents' different aspects of school involvement, including parent-teacher interactions and parents' participation in school activities.

2.1 The relationships between students' SES and parenting

As students' SES positively contributed to their intermediate outcomes, we also investigated the relationships between parenting practices and SES (see Figure 5). The results indicated that SES was positively related to parent-child relationships, digital parenting, and parental home-based involvement

Figure 5. Relationships between SES and parenting practices
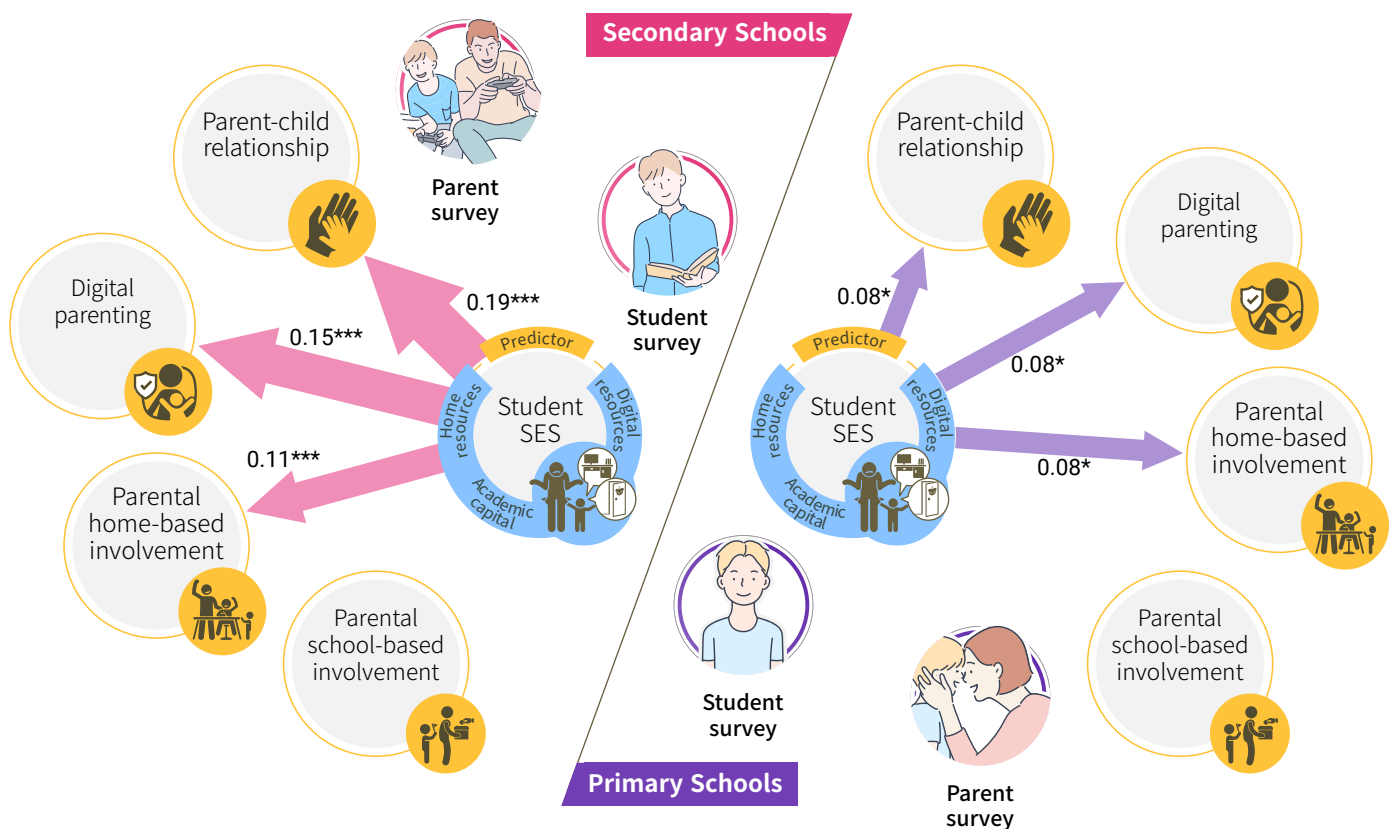
Note. *$p < .05$; **$p < .01$; ***$p < .001$. No line between variables indicates non-significance.

in both primary and secondary schools. Specifically, stronger relationships between SES and parenting practices were observed for secondary school parents and students. However, the relationship between SES and parental school-based involvement was not significant among the surveyed students and parents.

2.2 How different aspects of parenting affect students' intermediate outcomes

Before investigating the relationships between parenting practices and students' intermediate outcomes, we examined the correlations among different aspects of parenting practices (see Figure 6). The correlation results indicated that different aspects of parenting were inextricably related to each other, except that the correlation between parent-child relationship and parental school-based involvement was not significant.

Figure 6. Correlations among different aspects of parenting practices
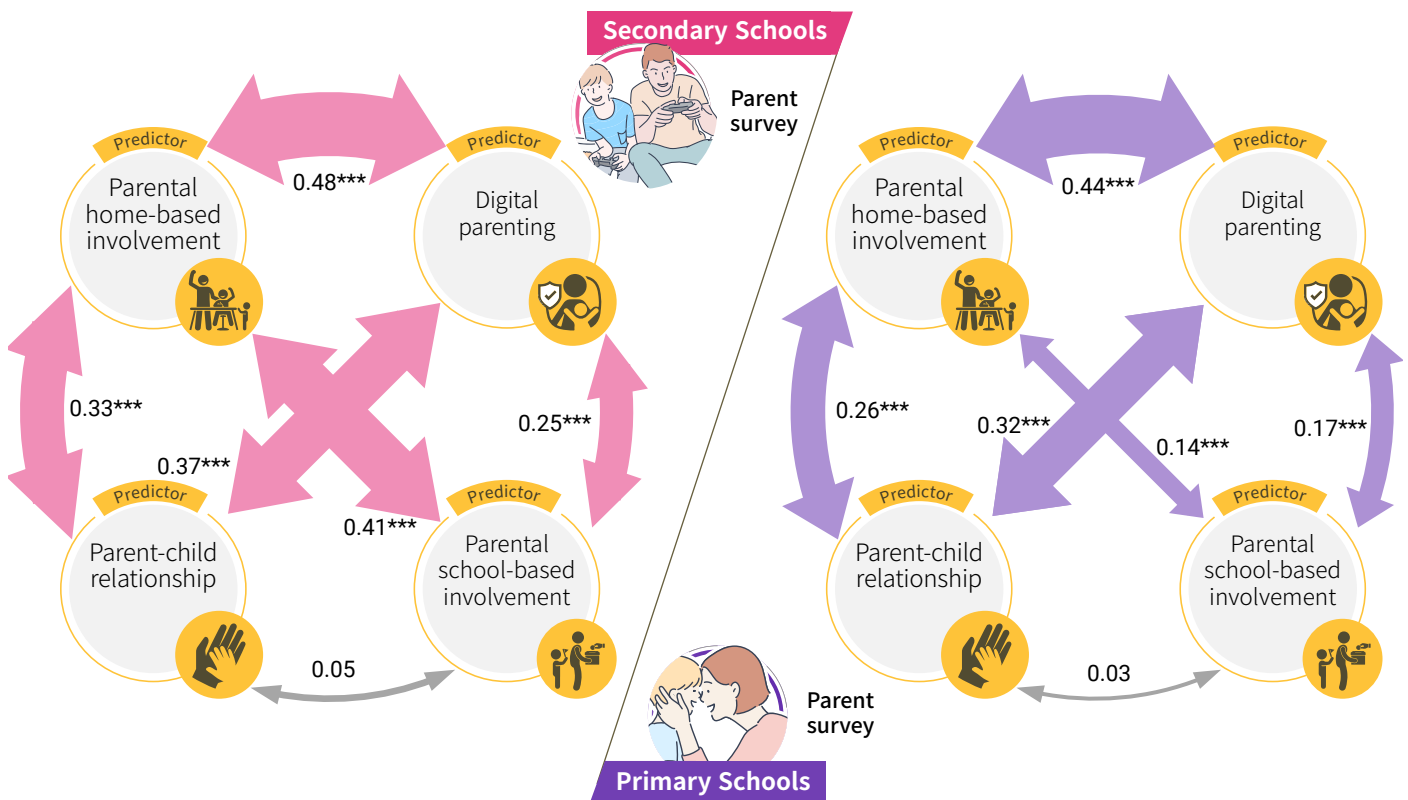
Note. *$p < .05$; **$p < .01$; ***$p < .001$.

Subsequently, a path analysis was conducted to investigate how students' intermediate variables were related to the four parenting indicators (see Figure 7). We found that all four different aspects of parenting practices contributed to students' intermediate outcomes, especially their cognitive emotional regulation strategies and self-regulated learning strategies. It is worth mentioning that a good parent-child relationship appeared to be a strong and positive contributing factor to students' learning and wellbeing in secondary school. Specifically, the parent-child relationship was positively associated with socialization and entertainment using digital media, positive cognitive emotional regulation strategies, self-regulated learning strategies, and digital literacy, and was associated with less negative cognitive emotional regulation strategies. In addition, in both primary and secondary samples, digital parenting was found to be significantly negative associated with negative cognitive emotional regulation strategies among students, indicating its universal impact.

Figure 7. Different aspects of parenting predicting students' intermediate outcomes

Secondary Schools

Parent survey

Student survey

Predictor: Parent-child relationship

Predictor: Digital parenting

Predictor: Parental home-based involvement

Predictor: Parental school-based involvement

0.10***
0.16***
-0.07*
-0.07*
0.12**
0.08**
0.09**
0.16***
-0.10**
-0.19***

Intermediate outcome: Socialization and entertainment using digital media

Intermediate outcome: Cognitive emotional regulation strategy (positive)

Intermediate outcome: Cognitive emotional regulation strategy (negative)

Intermediate outcome: Self-regulated learning strategy

Intermediate outcome: Cyberbullying experience

Intermediate outcome: Digital literacy

Primary Schools

Parent survey

Student survey

Predictor: Parent-child relationship

Predictor: Digital parenting

Predictor: Parental home-based involvement

Predictor: Parental school-based involvement

-0.11**
-0.07*
0.07*
-0.11**

Intermediate outcome: Socialization and entertainment using digital media

Intermediate outcome: Cognitive emotional regulation strategy (positive)

Intermediate outcome: Cognitive emotional regulation strategy (negative)

Intermediate outcome: Self-regulated learning strategy

Intermediate outcome: Cyberbullying experience

Intermediate outcome: Digital literacy

Note. $*p < .05$; $**p < .01$; $***p < .001$. No line between variables indicates non-significance. Dashed lines indicate negative relationships.

School Online Learning

In the third part of the analysis, a path model was used to investigate how school factors influenced teachers' online teaching using the data from the school leader and teacher surveys. The indicators used in the model are introduced below.

The outcome indicator was teachers' online teaching self-efficacy:

- **Self-efficacy in designing & implementing online teaching:** measures teachers' perceived effectiveness in conducting online lessons, utilizing digital resources, integrating digital technologies to facilitate learning, and achieving their teaching goals.

Two indicators related to the conditions after the fifth wave of school suspension as perceived by the school leaders were used:

- **Usage of digital technology for teaching and learning (T&L):** measures the extent to which school leaders used technology for several different purposes, such as learning assessment and support reflection.
- **Positive energy, trust & collaboration:** measures school leaders' perceptions on teachers' working status (communication and trust) and their collaboration behaviors.

Two indicators related to the conditions after the fifth wave of suspension perceived by the teachers were used:

- **Usage of digital technology for teaching and learning (T&L):** measures teacher's e-learning practices with multiple purposes, such as providing feedback and facilitating learning.
- **Teacher collaboration:** measures the extent to which teachers collaborated with each other for online learning administration and logistics and for online pedagogies.

Figure 8 displays the path model results. We found that school leaders' usage of digital technology for T&L was positively related to teachers' usage of digital technology for T&L, which then strengthened teachers' online teaching self-efficacy. Therefore, role-modelling by school leaders and mastery experiences

Figure 8. Path model results on school factors related to teachers' online teaching self-efficacy
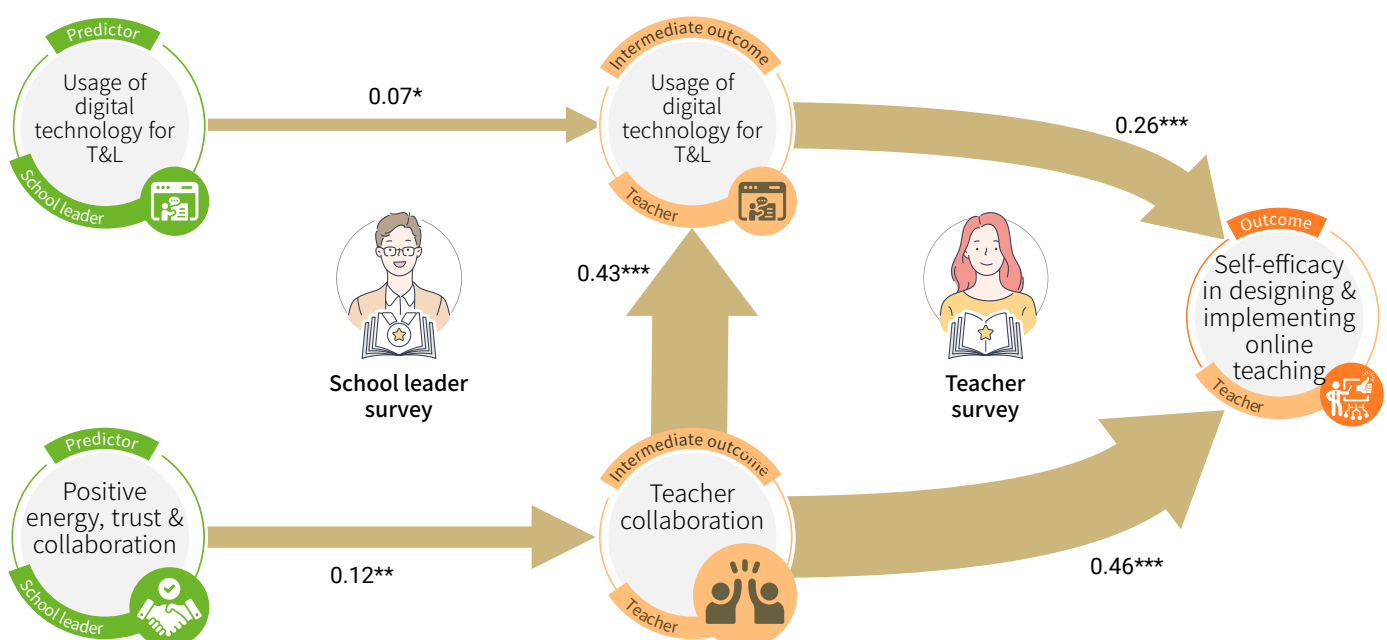
Note. *p < .05; **p < .01; ***p < .001.

from teachers increased digital technology usage, and the higher levels of teachers' technology usage might have contributed to their online teaching self-efficacy. On the other hand, positive energy, trust & collaboration in schools was positively related to teacher collaboration, which then strengthened teachers' online teaching self-efficacy. This finding suggests that trust and collaboration create a positive climate and it contributes to teachers' online teaching self-efficacy.

Recommendations

Based on the research findings, the team made the following recommendations for students, parents, schools and the community to better adapt to the Digital *New Normal*:

For **Students**

Students should be equipped with self-regulated learning strategies and positive cognitive emotional regulation strategies; both strategies can help them manage their emotions and stay focused on their goals. Furthermore, students should be encouraged to participate in activities that can enhance their digital literacy, such as learning how to use technology to conduct research and collaborate with others. Meanwhile, students should master strategies on how to prevent and respond to cyberbullying, which can have a significant impact on their wellbeing. Providing students with these skills will help them grow into more confident, resilient, and well-rounded individuals who can better handle the challenges of life in the future.

For **Parents**

It is essential for parents to foster a positive relationship with their children to support their online learning and wellbeing. It is important for parents to adopt a holistic approach in their parenting that involves digital parenting and parental home- and school-based involvement. It is also necessary for parents to teach their children strategies for managing their emotions and focusing on goals, to develop their abilities of self-regulated learning and cognitive emotional regulation, and then build their confidence and resilience in the Digital *New Normal*.

For **Schools**

Schools need a multi-faceted approach to improve teachers' online teaching self-efficacy and promote students' wellbeing in the Digital *New Normal*. Greater usage of digital technology, cultivating a positive school climate, and facilitating teacher collaboration should be encouraged so that teachers can be more efficacious in their online teaching. Moreover, schools should adopt appropriate strategies to enhance students' digital literacy and provide opportunities for them to master self-regulated learning strategies and positive cognitive emotional regulation strategies. Additionally, it is crucial for schools to work with parent-teacher associations and relevant social organisations to support parents to be more effective in their parenting, for example, how to build and maintain good relationships with their teenagers. By implementing these strategies, we can create a supportive and collaborative learning environment that enhances students' engagement, motivation, and overall wellbeing.