Potential of using Computer-Mediated-Communication tools for After-School Learning

Tak-Lam WONG\textsuperscript{a}, Siu Cheung KONG\textsuperscript{a}, Aihua WANG\textsuperscript{b}

\textsuperscript{a}Department of Mathematics and Information Technology, Hong Kong Institute of Education, Hong Kong, China
\textsuperscript{b}Graduate School of Education, Peking University, Beijing, China
*tlwong@ied.edu.hk

Abstract: The paper explored the potential for after-school learning using computer-mediated-communication (CMC) tools. A survey involving 284 high school students were conducted to study the usage of CMC tools, the motives of using CMC tools and the relationship between self-esteem. The findings showed that students had the ability and motivation to exploit CMC tools for after-school learning. Beside, the motives of using CMC are closely related to self-esteem of students. Teachers are recommended to provide more guidance and encouragement to these students for learning via CMC tools.

Keywords: Computer-Mediated-Communication, after-school learning, motives of CMC

Introduction

The rapid growth of Web technology brings much convenience in the communication between people. In particular, the emergence of computer mediated communication (CMC) tools such as online discussion forums, emails, and social network sites (SNS) including blogs, microblogs accelerate the social interaction between people. CMC tools allow two or more people to interact and share opinions, photos or videos through the Internet at different points of time. Recently, different forms of CMC tools have been applied to teaching and learning. For example, different pedagogies exploiting blogs and microblogs have been developed to improve the learning performance of students [1,2]. Brady et al. shows that education-based SNSs can be used effectively in distance education courses as a technological tool for improved online communications among students in higher distance education courses [3]. Dunlap and Lowenthal describe the use of Twitter to encourage free-flowing just-in-time interactions, enhancing the social presence in online courses [4]. CMC tools become increasingly common among students, especially after normal school hours. However, studies were conducted to illustrate that CMC tools might pose negative effect on students’ learning. For example, children lose the ability to pick up on nonverbal cues when they rely only on written text [5]. Studies also showed that Facebook users tended to spend relatively less time on study and achieve GPAs in the range of 3.0 to 3.5, while nonusers obtain GPA in the range of 3.5 to 4.0 [6,7]. On the other hand, after-school programs are found to be effective to improve students’ academic achievement and communication skill. For example, Durlak & Weissberg showed that after-school programs could improve students’ self-perceptions and bonding to school, their positive social behaviors, and their school grades and level of academic achievement [8]. In light of this, it raises the potential for adopting CMC tools as an after-school learning.
Researches were also conducted to study the relationship between personal characteristics and the usage of CMC [9,10]. Prior studies show that personality is one of the potential predictors for the use of CMC [11,12]. Ellis revealed that there was a strong association between Facebook usage and three types of social capital, namely, bridging social capital, bonding social capital, and maintained social capital [13]. Some studies reported that some students believed that their generation is not as good at learning as the pre-ICT generation, although they use the Internet and other ICT for school purposes [14]. With this regard, one of our objectives is to study the students’ motives of using CMC tools to see whether there is any potential for adopting CMC tools for after-school learning. In particular, our research questions are as follows:

- What are the motives of using CMC tools of students?
- Is there any potential for adopting CMC tools for after-school learning?
- Is there any relationship between CMC usage and self-esteem?

1. Method

This study conducted a survey investigating the CMC usage and self-esteem. It involved 284 students in Hong Kong. Among these students, 127 students are male and 157 students are female; 177 students are junior high school students and 107 are senior high school students. Each participated student was asked to complete a questionnaire consisting of three sets of questions, which were adapted from related instruments. The first set of questions of the questionnaire was related to CMC genres, which asked students to indicate how frequency they used CMC genres in a 4-point scale ranging from 1 = “never” to 4 = “often”.

The second set of questions was related to students’ motives of using CMC tools. The students were asked to indicate their level of agreement with each item in a 4-point Likert scale from 1 = “strongly disagree” to 4 = “strongly agree”. These questions related to students’ motives of using CMC tools were adapted from [15]. These questions focused on two factors of students’ motives of using CMC tools, namely the Socio-Affective Regulation (SAR) factor about a social or affinitive orientation toward Internet use; and the Goods-and-Information Acquisition (GIA) factor about a utilitarian or practical orientation toward Internet use [10,15]. In particular, the questionnaire items were as follows:

Q2.1. keep in touch with parents or teachers
Q2.2. keep in touch with classmates or friends
Q2.3. just look around
Q2.4. make new friends online
Q2.5. talk to others, share feelings
Q2.6. exchange information
Q2.7. seek others’ recognition
Q2.8. escape from reality
Q2.9. research on academic issues
Q2.10. research on living issues

The next set of questions of the questionnaire was related to students’ level of self-esteem. The students were asked to indicate their level of agreement with each item in a 5-point Likert scale from 1 = “strongly disagree” to 5 = “strongly agree”. The question was adapted from the Rosenberg Self-Esteem Scale [16] with reliability coefficient α of 0.73.
Table I shows students’ use of CMC genres. There was no student who had never used any one of the CMC tools before. As shown in the table, about 90%, 85%, and 70% of students frequently used SNS, Instant messenger (IMS), and Email for communication respectively. The majority of students were familiar with synchronized/asynchronized and private/public CMC tools to communicate. This indicated that students had the ability to acquire information and communicate with others online, leading to the potential for after-school learning using CMC tools.

Table II shows the statistics of the students’ motives of using CMC from the whole sample, junior high school students and senior high school students. Regarding the priority of the motives of using CMC tools, the top five motives in descending order were Q2.2 (keep in touch with classmates or friends), Q2.2 (just look around), Q2.6 (exchange information), Q2.10 (research on living issues), and Q2.9 (research on academic issues). As indicated, students mainly exploited CMC tools to communicate with peers and acquire information. The self-esteem of the students from the whole sample, junior high school, and senior high schools were 3.33 (S.D.: 0.59), 3.25 (S.D. 0.58), and 3.48 (S.D.: 0.59) respectively. The self-esteem of junior high school students was significantly lower than that of senior high school students (with p < .01). This observation was consistent with the ones reported in [17,18]. Self-esteem declines at the early adolescence stage and then increases at the late
adolescence stage. To study the relationship between different motives of using CMC tools and self-esteem, we calculated the Pearson correlation between different motives of using CMC and self-esteem. Table III shows the Pearson correlation coefficient between different motives of using CMC tools and self-esteem. As shown in the table, self-esteem is closely related to some of the motives of using CMC tools. This also is in line with findings that good use of CMC tools could probably lead to higher self-esteem as suggested in [19]. Self-esteem was positively related to Q1, Q2, Q9, and Q10, and negatively related to Q8. Students with lower self-esteem students were less likely to communicate with others and research on academic or living issues using CMC tools. They mainly treated CMC tools as a way to escape from reality. Self-esteem had no significant relation with any motives of using CMC tools for junior high school students. The difference between junior high school students and senior high school students is probably due to the fact that junior high school students, who are at the early adolescent transition stage, are influenced by many other factors such as personality, curiosity, enjoyment, parents and peer attachment [20,21]. On the other hand, senior high school students, who are at the late adolescent stage, have less guidance from parents and more social participation. Self esteem becomes a major factor for developing social skills [22].

<table>
<thead>
<tr>
<th>Motives</th>
<th>Whole sample</th>
<th>Junior high school</th>
<th>Senior high school</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2.1</td>
<td>0.23**</td>
<td>0.15</td>
<td>0.34**</td>
</tr>
<tr>
<td>Q2.2</td>
<td>0.16**</td>
<td>0.09</td>
<td>0.32**</td>
</tr>
<tr>
<td>Q2.3</td>
<td>-0.07</td>
<td>-0.06</td>
<td>-0.04</td>
</tr>
<tr>
<td>Q2.4</td>
<td>0.05</td>
<td>0.10</td>
<td>0.03</td>
</tr>
<tr>
<td>Q2.5</td>
<td>0.00</td>
<td>0.06</td>
<td>-0.08</td>
</tr>
<tr>
<td>Q2.6</td>
<td>0.09</td>
<td>0.14</td>
<td>-0.02</td>
</tr>
<tr>
<td>Q2.7</td>
<td>0.00</td>
<td>-0.02</td>
<td>0.09</td>
</tr>
<tr>
<td>Q2.8</td>
<td>-0.20**</td>
<td>-0.14</td>
<td>-0.25**</td>
</tr>
<tr>
<td>Q2.9</td>
<td>0.16**</td>
<td>0.07</td>
<td>0.27**</td>
</tr>
<tr>
<td>Q2.10</td>
<td>0.12*</td>
<td>-0.02</td>
<td>0.31**</td>
</tr>
</tbody>
</table>

Our study implies the need of after-school learning activities which aim at information acquisition through CMC between students. In this regard, teachers who incorporate CMC in after-school learning are recommended to design collaborative learning activities which ask students to exchange information on target topics through CMC tools with classmates or other people who can be helpful to their learning. Second, students with lower self-esteem are less likely to employ CMC tools to obtain useful information. Therefore, teachers are recommended to provide more guidance and encouragement to these students. Third, when considering incorporating CMC tool in students’ after-school learning, teachers should consider which types of CMC can be more appropriate. From our study, social network sites (SNS) and instant message (IM) are suitable for after-school learning because students are familiar with these tools.

3. Conclusion

This study conducted a survey with 284 high school students to explore the potential of using CMC tools for after-school learning. The results indicated that the students had sufficient ability and motivation for after-school learning. Our study also showed that self-esteem was closely related to the motives of using CMC tools. This suggested that teachers are
recommended to provide more guidance and pay more attention to students with low self-esteem when designing after-school learning activities.

References


