Survey & Research on Mobile Terminals in Classroom Teaching

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Abstract: Under Internet Plus environment, mobile terminal, taking mobile phone as a representative, is gradually participating in classroom teaching. By conducting a survey on 1,598 vocational college students, current classroom teaching is revealed and problems are exposed. Students were tested from 5 modules (mobile phone reliance; selection of the curriculum; subjective understanding; reasons and purpose; suggestions and solutions) with 10 specific questions. Some interesting and aspiring factors have been discovered, which illustrated there was a gap between the cognition of using mobile terminals in classroom teaching between students and teachers. Strategic analysis and solutions are proposed based on the survey. School management needs to be enhanced and the curriculum design should be optimized. There is a high demand in innovative classroom management from students and co-building a new class agreement in mobile terminal environment is highly recommended. There is also room for classroom teaching structure rebuilding; blended teaching module such as MOOC, SPOC and etc. provides more effective solutions. Meanwhile the mobile terminals should be redefined by teachers and teachers should guide the students to use mobile terminals positively and constructively in classroom to assist and promote classroom teaching. With in-depth investigation and big data analysis, the paper tries to figure out how mobile terminals currently role-played in classroom teaching and brings out practical suggestions.

1. Introduction
Representing by mobile phone, mobile terminal is penetrating into our daily life with its smartness, effectiveness and convenience. According to the Annual Report on Society Mentality of China 2015 co-released by Institute of social China Academy of Social Science and Social Sciences Academic Press, average time spent on smart phones of college students in China is around 5 hours 17 minutes, which occupies 22% of a day. [1] In education area, mobile terminals entering classroom teaching becomes a global phenomenon. Competing with mobile phones to seize students’ interest develops into a worldwide problem and brings new challenges to educators. With China’s entering into the era of Internet Plus, colleges and universities are building and upgrading smart campus from digital campus based on internet and information technology innovation. Mobile phone, as a representative of mobile terminal, gradually integrates with classroom teaching and becomes an indispensable part of college classroom. Chen Huaizhi once pointed out: the abuse of mobile phone took huge crash and challenges to classroom teaching organization and management in universities. Some college teachers even considered mobile terminals as “monsters in class”. [2]
2. Survey
To better understand the status quo and how mobile phones affect classroom teaching, a survey was conducted on students enrolling in 2016 in a vocational college. Altogether 1,598 questionnaires were distributed and received 1,315 back. There were 1,296 effective questionnaires, which was 82% of the total. There were 5 modules in this questionnaire as shown below in Table 1, with detailed questions included in each module.

| Module                        | Detailed questions                                                                 |
|-------------------------------|------------------------------------------------------------------------------------|
| 1. Mobile phone Reliance      | The frequency of using mobile phone in class.                                     |
|                               | Specific time section of using mobile phone in class.                             |
|                               | Time spent on mobile phones in class.                                             |
|                               | Students’ mentionation without mobile phones                                      |
| 2. Selection of the curriculum| In what subject class students use mobile phone more.                              |
| 3. Subjective understanding   | How students estimate the behavior of using mobile phone in class.                 |
|                               | How students evaluate the influence of using mobile phone in class.                |
| 4. Reason and purpose         | The reason why students use mobile phone in class.                                |
|                               | What do students use mobile phone to do in class.                                 |
| 5. Suggestion and solutions   | How students suggest to solve the problem.                                         |

3. Findings
3.1 Mobile Phone Reliance

3.1.1 The frequency of using mobile phone in class

| Table 2 Frequency of using mobile phone |
|----------------------------------------|
| Every class                            |
| When necessary (replying messages etc.)|
| Sometimes bored                       |
| Never                                  |

As shown in the Table 2, 28.06% of the students never use mobile phones in class which tells that the majority would use mobile phones in class. The ratio of using mobile phones every class is rather small, only 4.41%. For the rest part, 35.16% will use their mobile phones when necessary, for example checking or replying messages. The other 32.37% will use mobile phones for fun when they feel bored. This two figures weight almost alike.

3.1.2 Specific time section of using mobile phone in class
As shown in Table 3, the class is divided into 3 sections to better understand in which section students use mobile phones more: class beginning (about the first 10 minutes); mid class (the middle part of teaching from around the 20th to the 35th minutes); class ending (the last 10 minutes). Results illustrate that 22.47% will begin to use mobile phones at the very beginning of a class. In the mid-class section, the figure drops to 12.47% but suddenly climbs to 60.86% at the class ending section. Still 4.19% of the students use their mobile phones in the whole class.

3.1.3 *Time spent on mobile phones in class*

| Time Spent on Mobile Phone | Percentage |
|---------------------------|------------|
| A. 2-5 minutes             | 64.74%     |
| B. 5-10 minutes            | 24.3%      |
| C. 10-20 minutes           | 6.88%      |
| D. More than 20 minutes    | 4.09%      |

According to the survey and Table 4, 64.74% are carefully controlling the time of using mobile phone between 2 to 5 minutes. 24.3% of the students will use mobile phone 5 to 10 minutes in class. 6.88% will spend 10 to 20 minutes while 4.09% will spend more than 20 minutes. The time of using mobile phones goes up; the percentage of students goes down.

3.1.4 *Students’ mentation without mobile phones*

Finding from Figure 1, if there is no mobile phone, 58.18% of the students feel worried but are still able to continue class study. 33.51% never care and even feel better to learn without mobile phones. 3.12% will try to borrow or fetch their phones if possible. A small group, about 5.19% will be extremely anxious and unable to study.
3.2 Selection of the curriculum: In what subject class students use mobile phone more

| Table 5 Selection of the curriculum |
|-------------------------------------|
| Specialty technical course | Optional course | Politics course | Practical training course | All courses | Never use mobile phone |
|---------------------------------|----------------|---------------|--------------------------|-------------|-----------------------|
| 30.0%                          | 22.3%          | 36.0%         | 2.0%                     | 0.0%        | 12.0%                 |

The curriculum generally contains specialized technical course, optional course, politics course and practical training course. Based on results in Table 5, there are 3.12% and 1.72% using mobile phone in specialized technical course and practical training course. Bigger number comes to optional course and politics course, which are 30.79% and 22.37% respectively. About 36% of the students never use mobile phone in all courses while 5.81% use mobile phone in all courses.

3.3 Subjective understanding

3.3.1 How students estimate the behavior of using mobile phone in class

![Figure 2](image)

From Figure 2, 38.28% of the students hold a very negative opinion on how the behavior will affect study: using mobile phone in class will badly influence study. More than half (56.34%) of the students think under good control, using mobile phone little influence the learning. 3.98% of the student say mobile phone helps a boring class and they would prefer using mobile phone for fun. Only 1.4% proposes their support to this behavior.

3.3.2 How students evaluate the influence of using mobile phone in class

| Table 6 How students evaluate the influence |
|---------------------------------------------|
| Big influence | Small influence | No influence | Not sure |
|----------------|-----------------|--------------|---------|
| 60.0%         | 35.0%           | 10.0%        | 5.0%    |
In Table 6, 52.69% agree it has very big influence on study and 37.63% show the similar opinion that it has certain but small influence. 5.91% deny the influence while 3.76% are not sure.

3.4 Reason and purpose

3.4.1 The reason why students use mobile phone in class

| The reasons                  | Percentage |
|------------------------------|------------|
| Search information and look up dictionaries | 49.14%     |
| Indulged in playing games or reading novels | 22.26%     |
| Influenced by others         | 22.8%      |
| Be noticed or interrupted    | 22.5%      |
| Can not understand and follow up | 22.1%     |
| No interest in the course    | 22.0%      |
| Just a habit                 | 21.9%      |
| Too simple and easy class teaching | 21.6%     |
| Boring and unattractive      | 21.5%      |

The reasons why student use mobile phone in class are various in Table 7. 45.59% find the class boring and unattractive therefore starting using mobile phone for fun. 31.61% have no interest in the course and content of teaching, 31.51% can’t understand the teaching but on the contrary 22.26% feel the class is too simple for them. Other causes are also important factors that can’t be overlooked. 22.8% will begin using mobile phone once noticed or interrupted (for example a coming message or a phone call). 16.99% will be influenced by other students. 7.53% of the students indulge themselves in playing games or reading novels via mobile phone, and 8.39% just have the habit of using and playing mobile phone in class. What’s more, 49.14% use mobile phone to search information and look up dictionaries.

Table 8 Further analyse of the reasons

| The reasons                  | Percentage |
|------------------------------|------------|
| Lack of self-restrain and self-discipline | 80.43%     |
| No clear study target        | 51.56%     |
| A Modern lifestyle greatly relied on mobile phones | 57.96%     |
| Inadequate supervision and management from school | 16.77%     |

Table 8 tries to further analyse the reasons, 80.43% attribute to the lack of self-restrain and self-discipline of college students. 51.56% don’t have clear study target. 57.96% reckon a modern lifestyle greatly relied on mobile phones and 16.77% call for more supervision and management from school and teachers.

3.4.2 What do students use mobile phone to do in class.
As shown in Table 9, in general, students use their mobile phones for fun and social communication. Social communication tools such as Wechat, QQ, Weibo, Text message respectively contribute 59.35%, 56.34%, 21.94%, 10.11%. On entertainment, 37.2% read news, 23.23% play games, 21.4% read novels and 17.53% enjoy music.

3.5 Suggestions and solutions

As shown in Figure 3, when asking students to give advice to teachers, 83.01% believe a humorous teacher will help students quit playing mobile phones. 53.87% agree that more and better interaction between teacher and students will be helpful. 51.61% expect the teachers to be resourceful. 49.35% hope the teachers can enrich their teaching content and involve more related information into classroom teaching.

Students also proposed more suggestions as listed in Table 10. 28.71% think the school should enhance management. 64.52% raise the question of adjusting and improving curriculum design. 64.19% highlight the importance of improving teaching quality. 14.3% even suggest closing campus WIFI at teaching hour. 16.34% are pessimistic, saying it is inevitable to stop using mobile phone in class.

Table 9 Purposes of using mobile phone

| Purpose                        | Percentage |
|-------------------------------|------------|
| Weibo                         | 25.94%     |
| QQ                            | 22.56%     |
| Wechat                        | 10.17%     |
| Reading novels                | 10.17%     |
| Games                         | 10.17%     |
| Sending text message          | 4.83%      |
| Reading news                  | 8.53%      |
| Download                      | 8.53%      |
| Music                         | 8.53%      |
| Others                        | 16.34%     |

Figure 3 Advices to teachers

Table 10 More suggestions

| Suggestion                        | Percentage |
|-----------------------------------|------------|
| Others                            | 13.01%     |
| Unable to solve the problem       | 36.34%     |
| Close campus WIFI at teaching hour| 14.3%      |
| Improve teaching quality          | 64.10%     |
| Interesting curriculum            | 64.52%     |
| Enhance school management         | 28.71%     |
4. Suggestion

4.1 Enhance school management, optimize curriculum design

The results of the survey show the students share a similar view on using mobile phones in class. 56.34% of the students accept using mobile phones in class once under good management and control. 52.96% think using mobile phones would greatly affect class study while 37.63% of them reckon a negative but relatively small influence. That is to say, up to 90.3% of the students agree this behavior would affect class study. Combing these figures, we can find out the fact clearly that using mobile phones in class is widely accepted by students, while students also understand the negative influence it brings up. Therefore, we have to respect the reality and inevitable trend that mobile terminals have already coexisted with classroom teaching. The traditional management and practice such as taking away students’ mobile phones or prohibiting bringing mobile phones to class is outdated. [3] We should take the advantage of the students’ physiological cognition that “using mobile phone affects class study indeed”, follow their needs and instruct them to use mobile phone in class in a more appropriate way.

Students’ feedback on curriculum design is also worth discussing. According to the survey, 30.79% choose to use mobile phones in optional courses. In a similar research conducted by Yang Yun [4], the same result was found out that optional courses were students’ first choice to use mobile phones. 31.61% state that a boring class will drive the students moving to their mobile phones. 64.52% suggest optimizing curriculum design will greatly help to solve the problem. A conclusion could be draw that there is an urgent call for optimizing curriculum design and among all courses; optional course enjoys the highest priority to be reviewed and optimized.

4.2 Innovate classroom management, co-build class agreement

There is actually a misunderstanding on mobile phones in class among teachers. Due to inadequate support from big data and in-depth survey, teachers always have a judgment that students can’t handle without mobile phone and they are not aware of its negative influence at all. Most teachers feel helpless and incapable in class. In fact, the results of the survey surprise us. Without mobile phones, 58.18% are worried but feel all right to continue study. 33.51% never care and even feel better. Altogether, 91.69% of the students could attend a class without mobile phone. Other causes and interruptions are also important factors. 22.8% will use mobile phone once noticed or interrupted by a coming message or a phone call and 16.99% will be affected by classmates. 83.01% will stop using mobile phone if the teacher will be humorous and 53.87% suggest more interaction between teacher and students would be helpful. 14.3% even propose to close WIFI connection at class hours.

From the statistics above, the co-existence of mobile phone and classroom teaching is actually achievable. Teachers should be more optimistic and tolerant to upgrade their classroom management. By investigating the needs of the students, teachers should have more communication and interaction with students to encourage positive class engagement, finally to enrich their learning experience. Meanwhile, innovative classroom management is requested. Wang Bing believed that an excellent class administrator could solve problems before the problems came out. The smartest way was to settle down classroom rules and regulations with students, and use the internet when necessary and needed. [5] A class agreement based on mutual acknowledgement by students and teachers could be set up and observed. This agreement helps to regulate the use of mobile phones in class and contribute to harmonious class teaching.

4.3 Rebuild class structure, redefine mobile terminals

In which section of a specific class would students use their mobile phones more? The answer from the survey is really inspiring. In the core section of a class – mid class section, only 12.47% will choose to use their mobile phones. At class beginning, 22.47% will use their phones while as many as 60.86% will use phones at class ending section. Students reveal a consistency on time selection: mobile phones little influence the core teaching section, but dramatically affect class beginning section.
and ending section, which are considered to be the non-core section. This fact offers the possibility of rebuilding our class structure.

Liu Wei suggested that Teachers could assign tasks to students before class. After self-learning in their spare time, students attended class with problems and questions they encountered. Teachers could focus classroom teaching on problem shooting. [6] More importantly, educational environment based on Internet Plus makes it possible to rebuild our class structure. The lead-in section of a traditional class could be relocated and inverted with the wide application of MOOC, Micro-lecture, SPOC, Video Open Online Course, online courses and so on. With the internet, students could finish the lead-in part at home ahead of time. Teachers could be concentrated in a face to face class to teach and explain core knowledge. In the Internet Plus module, the roles and functions of mobile terminal are redefined. Rather than an entertaining tool, with internet mobile phone could be used as a tool for searching, commenting and discussing, [7] and could coordinate classroom teaching.

In the age of Internet Plus, college classrooms are gradually evolving into smart classrooms. Featured by “sharing, melting and interacting”, smart classroom is an educational information environment which encourages both teachers and students to use mobile devices and WIFI in class to get connected to campus network and internet, therefore obtaining education resources. [8] College teachers should follow the steps of technology innovation and embrace social progresses. With integrated mobile technology, internet and data platform, we could make great education innovation.

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