國中生性別、電腦使用型態、電腦使用時間與學習成就的關係—科技社會學的觀點

【摘　要】

本研究之目的主要在於了解電腦使用型態和使用時間對學習成就的影響。但根據科技社會學的觀點，研究者認為電腦對學習成就的影響可能會依性別而有所不同，因此兼論性別對電腦使用型態和時間的影響，以及在不同的性別脈絡下，電腦使用型態和使用時間對學習成就的影響是否仍然相同？

為達上述之研究目的，研究者使用中央研究院 2001 年「臺灣教育長期追蹤資料庫」（TEPS）的全國國中生家長和學生樣本進行分析，該資料庫實際調查樣本數為 20,004，但實際分析樣本約在 10,000 到 12,500 之間。研究者依不同目的，進行 T 考驗、卡方考驗、單因子變異數分析、二因子變異數分析和多元迴歸的統計分析，主要發現如下：

一、國中生電腦使用型態和使用時間對學習成就有影響：

（一）從未使過電腦的國中生，學習成就最差；使用過電腦的國中生，電腦使用型態對學習成就的影響會因性別和使用時間而有所不同。

（二）電腦使用時間超過 3 小時的國中生，學習成就最差；使用時間不到 3 小時的國中生，電腦使用時間對學習成就的影響會因性別和使用型態而有所不同。

二、國中生性別對電腦使用型態和使用時間有影響：

（一）在電腦使用型態方面，國中女生「人際取向」和「學習取向」的比例較高，國中男生則以「娛樂取向」比例較高。

（二）在電腦使用時間方面，國中男生不論是在總時間或個別使用型態（人際取向、學習取向和娛樂取向）的使用時間皆高於國中女生。

（三）不論性別男女，「學習取向」的使用時間都最少，「娛樂取向」的使用時間次之，「人際取向」的使用時間都最多。

三、不同性別國中生電腦使用型態對學習成就的影響有差別：

（一）國中男生「學習取向」使用型態的學習成就與「娛樂取向」大多沒有顯著差異，只有在使用時間「2 到 3 小時」時，「學習取向」才顯著地高於「娛樂取向」。而「學習取向」和「娛樂取向」的學習成就在使用時間「不到 3 小時」前，皆高於「人際取向」。

（二）國中女生「學習取向」使用型態的學習成就較高，和國中男生不同的是，她們是在「娛樂取向」和「人際取向」之間學習成就沒有顯著差異，而使用時間大於 1 小時以後，國中女生「學習取向」和「娛樂取向」兩者的學習成就也沒顯著差異。

四、不同性別國中生電腦使用型態對學習成就的影響有差別：

（一）國中男生電腦使用時間越長學習成就越低的情況發生在「學習取向」和「娛樂取向」型態，在「人際取向」裡不同時間沒有顯著差異，不論使用時間多長，學習成就都一樣差。

（二）國中女生電腦使用時間越長學習成就越低發生在「學習取向」和「人際取向」型態，在「娛樂取向」裡不同時間沒有顯著差異，不論使用時間多長，學習成就都不太高。

研究者從主要的研究發現檢視科技社會學理論，提出三點反省：一、科技本身仍對社會具有影響力，但也受到社會因素的影響；二、科技不只形塑特定團體的利益，也同時將損害形塑進去；三、不同的社會團體在使用科技時會互相排除，並不是優勢族群就會自動勝出。

從本研究的發現與結果，研究者建議家長應為子女購置電腦設備，而教師及家長應引導孩子做有益學習的使用，控制使用時間以及注意使用電腦時的兩性公平。研究者也認為在後續研究上，可從質化方法探索形成差異的真正成因；也可從量化方法分析數學或語文等其他學習成就，或以不同變項為分析脈絡、不同年齡層學生為研究對象，以及探討更專業的電腦使用中的性別差異。

Junior high school students' gender, the types and the time of computer usage, and study achievement – viewpoint of sociology of technology

Abstract

The main purpose of this research is to realize the effect of the types and the time of computer usage on study achievement. According to the sociology of technology, I argue that the effect of computers on study achievement will be different by gender. Therefore, I will discuss the effect of gender on the types and the time of computer usage, and investigate if the effect of the types and the time of computer usage on study achievement will be the same under different gender context?

In order to accomplish these purposes, I analyzed the nationwide samples of junior high school students and their parents. These samples (N=20,004, but approximately 10,000~12,500 in analysis) came from "2001 Taiwan Education Panel Survey" collected by Academia Sinica. Statistical methods of this research are Student's t-test, Chi-square test, one-way ANOVA, two-way ANOVA and multiple regression. The main findings are listed below:

1. The types and the time of computer usage of junior high school students have influenced their study achievement:
   (1) Students who have never used a computer have the worst study achievement, whereas when students have had experience of computer usage, the effect of types of computer usage on their study achievement is different both by gender and the time of computer usage.
   (2) When students' time of computer usage is over 3 hours, they have the worst study achievement. But for those using a computer less than 3 hours, the effect of time on their study achievement is not the same by gender and the types of computer usage.

2. Gender of junior high school students has influenced the types and the time of computer usage:
   (1) In the types of compute usage, girls have a higher percentage of the "relationship type" and the "learning type" than boys while boys have a higher proportion of the "entertainment type" than girls.
   (2) In the time of computer usage, boys spend more time than girls, no matter on total

or individual types.

(3) Regardless of gender, students spend least time on the “learning type” and most time on the “relationship type”. Time spent on the “entertainment type” is in the middle.

3. The types of computer usage exert a different effect on study achievement in different gender context:

(1) To boys, most differences in study achievement are not significant between the “learning type” and the “entertainment type” except that the time of computer usage is 2~3 hours. The study achievement of the “learning type” and the “entertainment type” is higher than the “relationship type” when they use a computer for less than 3 hours.

(2) To girls, the study achievement of the “learning type” is higher. But different from boys, the differences in their study achievement are not significant between the “entertainment type” and the “relationship type.” Moreover, the differences in study achievement are not significant between the “learning type” and the “entertainment type” when they use a computer for more than 1 hour.

4. The time of computer usage exerts a different effect on study achievement in different gender context:

(1) To boys, the situation that the more time one uses a computer, the less study achievement he has only occurs in the “learning type” and the “entertainment type.” Study achievements have no significant difference between diverse time of computer usage in the “relationship type.” No matter how long the time is, the study achievements are all the same bad.

(2) To girls, the situation that the more time one spends on the computer, the less study achievement she has only occurs in the “learning type” and the “relationship type”. Study achievements have no significant difference between diverse time of computer usage in the “entertainment type”, no matter how long the time is, the study achievements are not high.

After reflecting over the theory of sociology of technology from findings, I bring up three opinions: 1. Technology has an influence on the society by itself, but it is affected by social factors as well. 2. Technology shapes not only the benefits of specific groups but also the damage. 3. When using technology, different social groups will exclude each other. The superior group does not always overwhelm inferior group automatically.

From the findings and outcomes, I propose that parents should purchase computer equipment at home, and teachers and parents should lead children to use the computer in a benefic way, control the time of computer usage, and keep an eye on gender equity when children use a computer. I also suggest in the follow-up other researchers could use a qualitative way to explore the real reason of difference and use a quantitative way to analyze other achievements (ex. math and literature). They can take other variables as context, take other ages as objects, and discuss gender difference in professional computer usage.