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Bond Padagogy Project

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Background and Literature

There are two components of the coupled term, mobile learning. Mobility refers to the untethered nature of the student experience. Devices such as smart phones, tablets, net-books, and iPads make learning materials light-weight and portable. Mobility also means that students can access the internet anywhere, anytime, provided that they also have access to a wireless or 3G network. "Mobile devices open up new opportunities for independent investigations, practical fieldwork, professional updating and on-the-spot access to knowledge" [Kukulska-Hulme & Traxler, (2005), p.26]. Mobile access to the internet affords the opportunity for the constructivist educator to engage students in hands-on inquiry (Cavus & Uzuboylu, 2009; Chao & Chen, 2009; Chen et al., 2008; David et al., 2009; Motiwalla, 2007). These tasks are part of the pedagogy of the higher educator and intended to promote learning.

Much has been made of mobile learning and improved student experience and there is little question that the prospect of anytime, anywhere using small, yet powerful multi-purpose tablet computers is tantilising (Vavoula, Pachler, & Kukulska-Hulme, 2010; Guy, 2009). As with all new approaches to teaching and learning, the burden of proof must rest with the innovation, rather than the established approach. Yet, discourse on mobile learning and indeed, uses of emerging technologies in education more generally, readily presents assumptions about learning gains often based on observations of learner, teacher or administrator attitudes without testing the actual learning outcomes related to the technology use.

Objectives

This research tested the efficacy of a blended learning iteration with iPad tablet computers, an e-textbook and Blackboard's Mobile Learn application connected with a learning management system (LMS).

Research Questions

1. What mobile learning technologies do students currently bring with them to the classroom?
2. What attitudes toward using mobile learning technologies are demonstrated particularly in relation to tablet computers, e-textbooks and LMS applications on mobile devices?
3. What is the observed relationship between use and attitudes of mobile learning tools and academic performance as a proxy for learning?
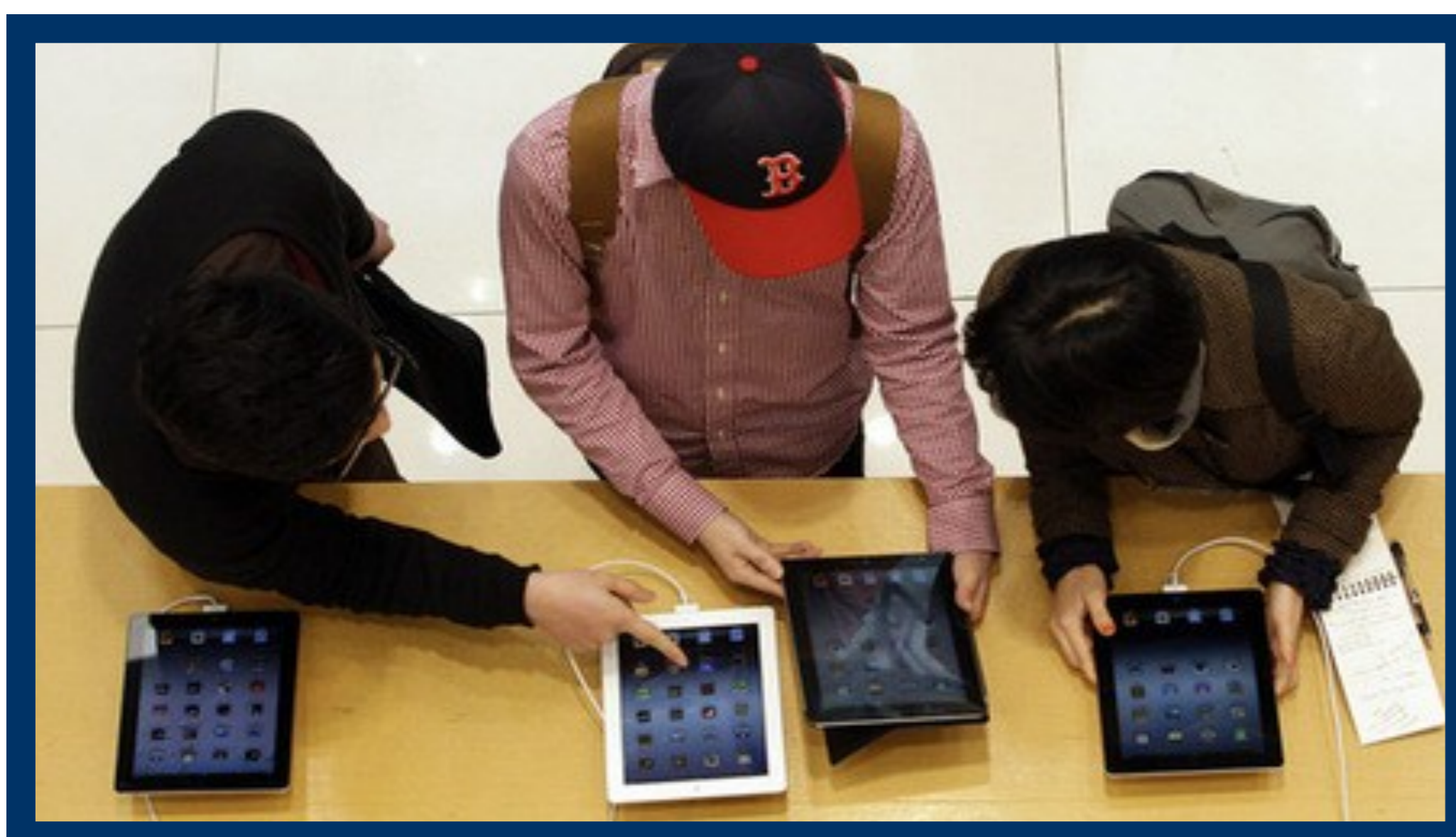
Participants

A total of 135 students who were enrolled in an undergraduate subject titled *Digital Media and Society* in the final semester of 2010 and the first semester of 2011 participated in the study. Of the 135 undergraduate students who participated in the project, 63% were female. Modal age was 21 years (mean=22, range=19, standard deviation=3.9 years). Sixty percent were enrolled in the subject as required for their major or degree while 25% were enrolled for elective credit and 15% were study abroad students. The final grade distribution for these students was slightly skewed with 40% earning a *Pass*, 28% a *Credit*, 20% a *Distinction*, 7% a *Fail* and 5% a *High Distinction*.

Results

What mobile learning technologies do students currently bring with them to the classroom?
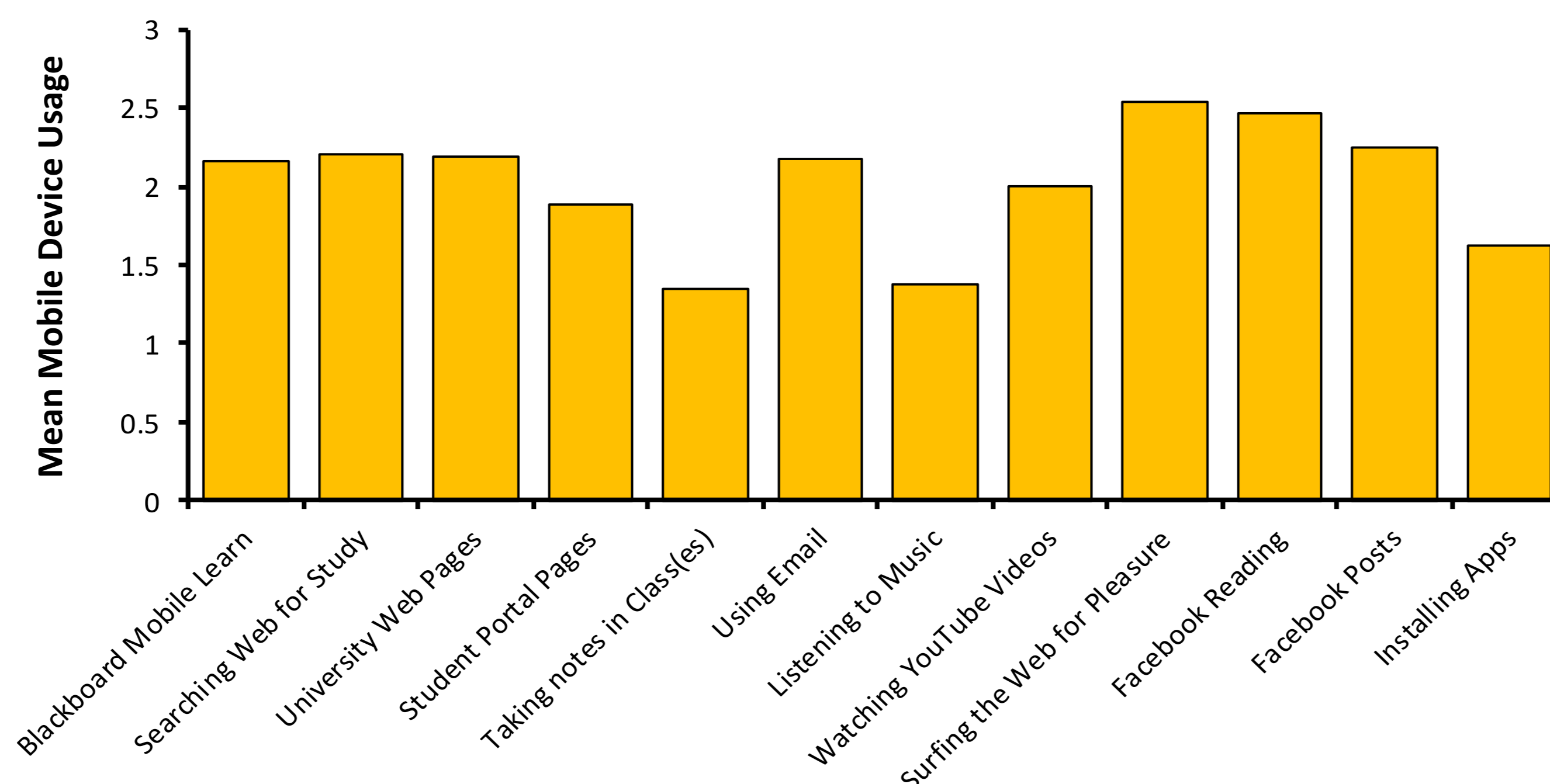
> ...*when controlling for age and self-managed learning, those who used the iPad more had the highest grades [F (4, 76) = 7.32, p < .001]*

What attitudes toward using mobile learning technologies are demonstrated particularly in relation to tablet computers, e-textbooks and LMS applications on mobile devices?

Qualitative Analyses

Eighty of the students elected to loan iPads and participated in a focus group at the conclusion of their loan period. The major themes that appeared through qualitative analysis of the focus group transcripts were: advantages and disadvantages of the iPad, and the experience of using the e-textbook.

Advantages of the iPad. Overall, many of the students were enthusiastic about their esteem for the iPad. Two of the descriptors used by students were "sick" [a slang expression meaning excellent] and "revolutionary." Other volunteered attributes of the iPad held in esteem were the "long battery life" and the screen size, said to be "good for games." Some students specifically addressed learning using iPads, describing interactivity and "learning-on-the-go" as advantages.

Disadvantages of the iPad While the students listed numerous advantages of the iPad, as described above, the students were no less vocal regarding their perception of disadvantages. The majority of the complaints regarded features that the students believed that the iPad should have, but does not. These missing features included: USB port, Microsoft Word, camera, flash, chat functions and 3G. Numerous students also commented that typing on the touch-screen keyboard is not comfortable and is error-prone. A common theme was that the iPad was a novelty, but not a valid educational tool.

Experience of Using the Electronic Textbook. Whereas there were minimal comments specific to use of the mobile LMS application, the electronic textbook provoked extensive commenting, the majority of which was positive. Some of the functions they commended were: highlighting, searching, dictionary and bookmarking. Numerous students described the format of the book as 'engaging'. One student said, "people will engage with already doing something, like it's a game". A minority of students criticized the electronic version of the book, stating that navigating through the book was "awkward" and/or stating that they prefer to read from paper.

Results

What attitudes toward using mobile learning technologies are demonstrated particularly in relation to tablet computers, e-textbooks and LMS applications on mobile devices?

Quantitative Analyses
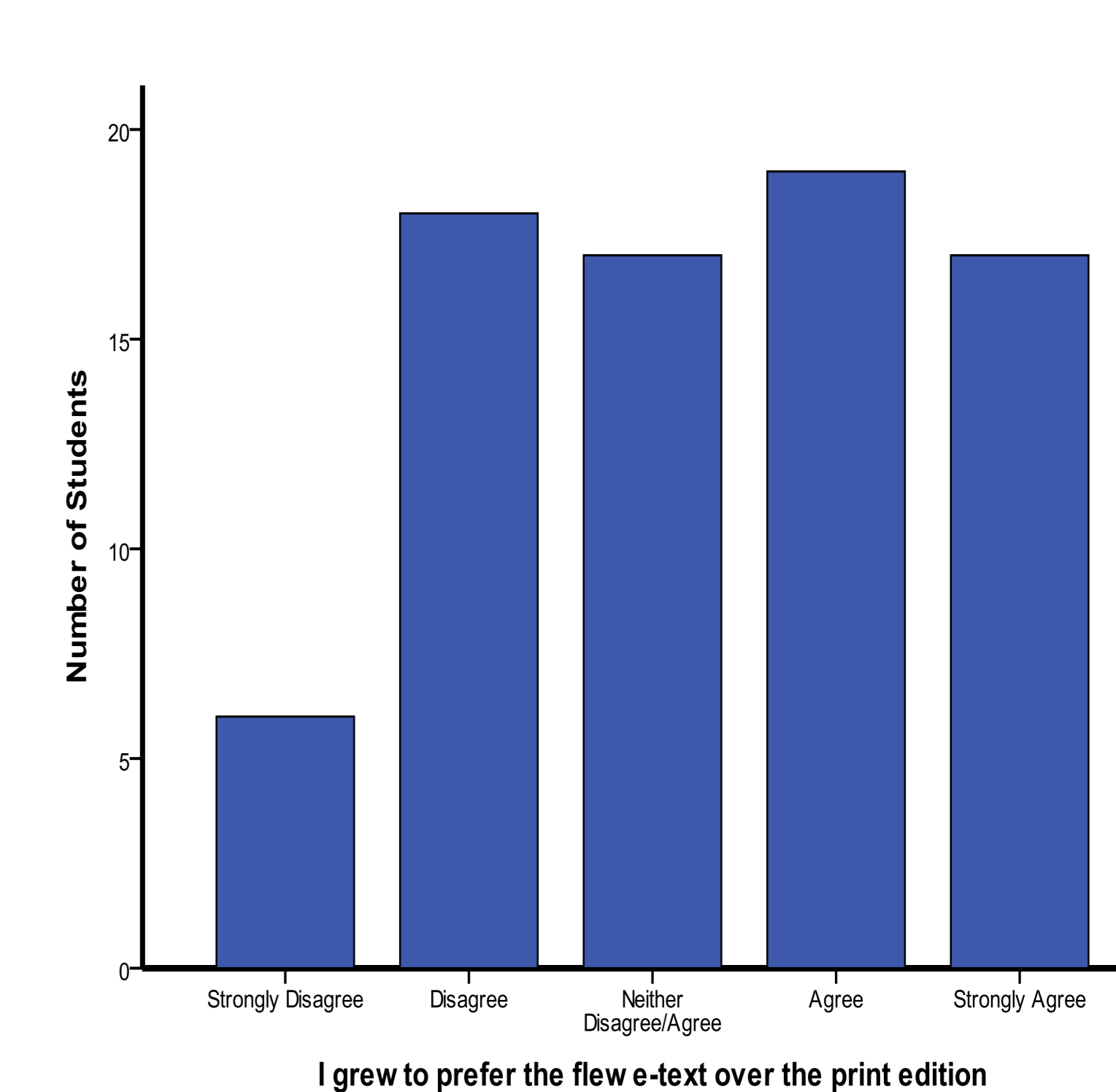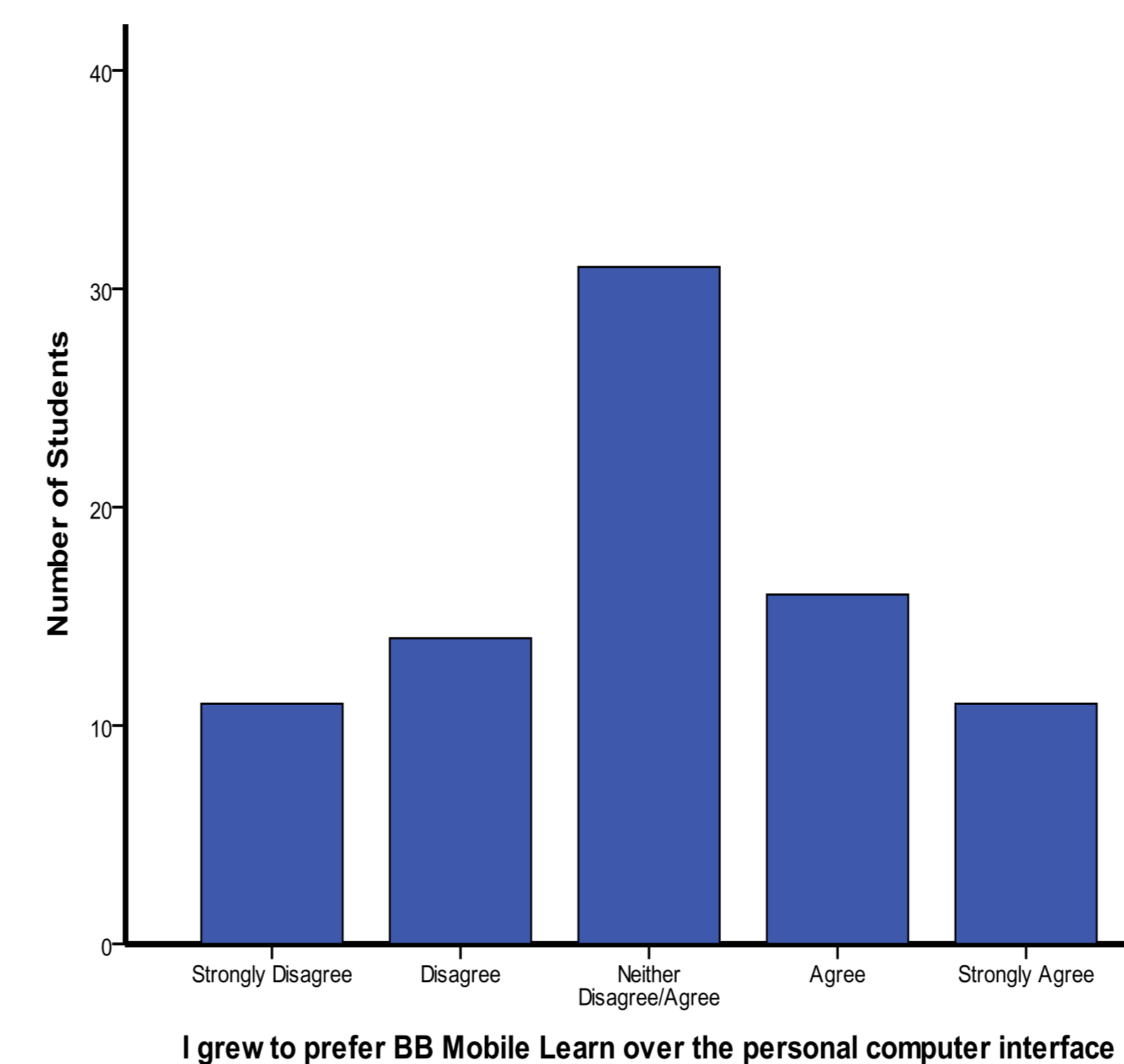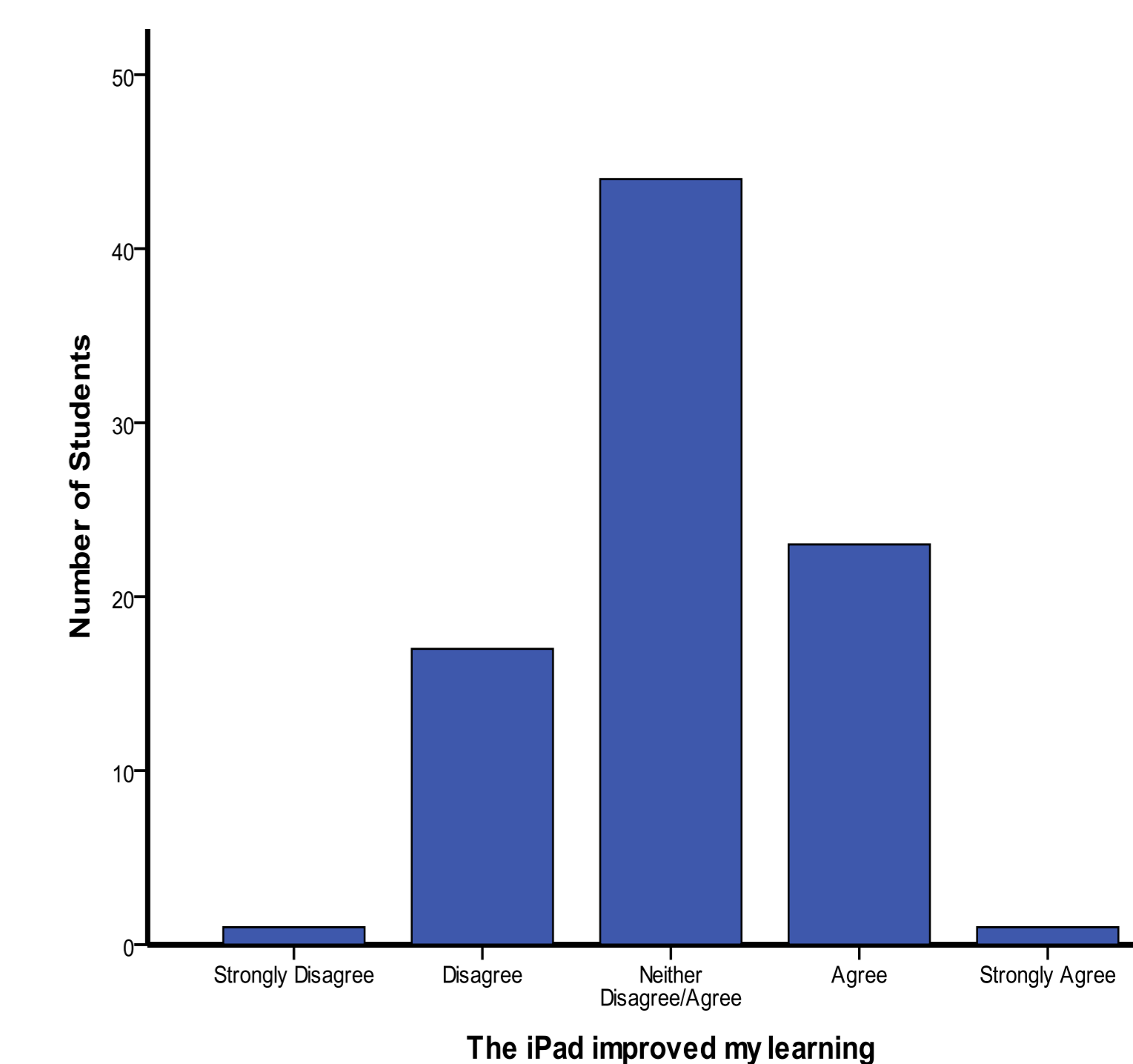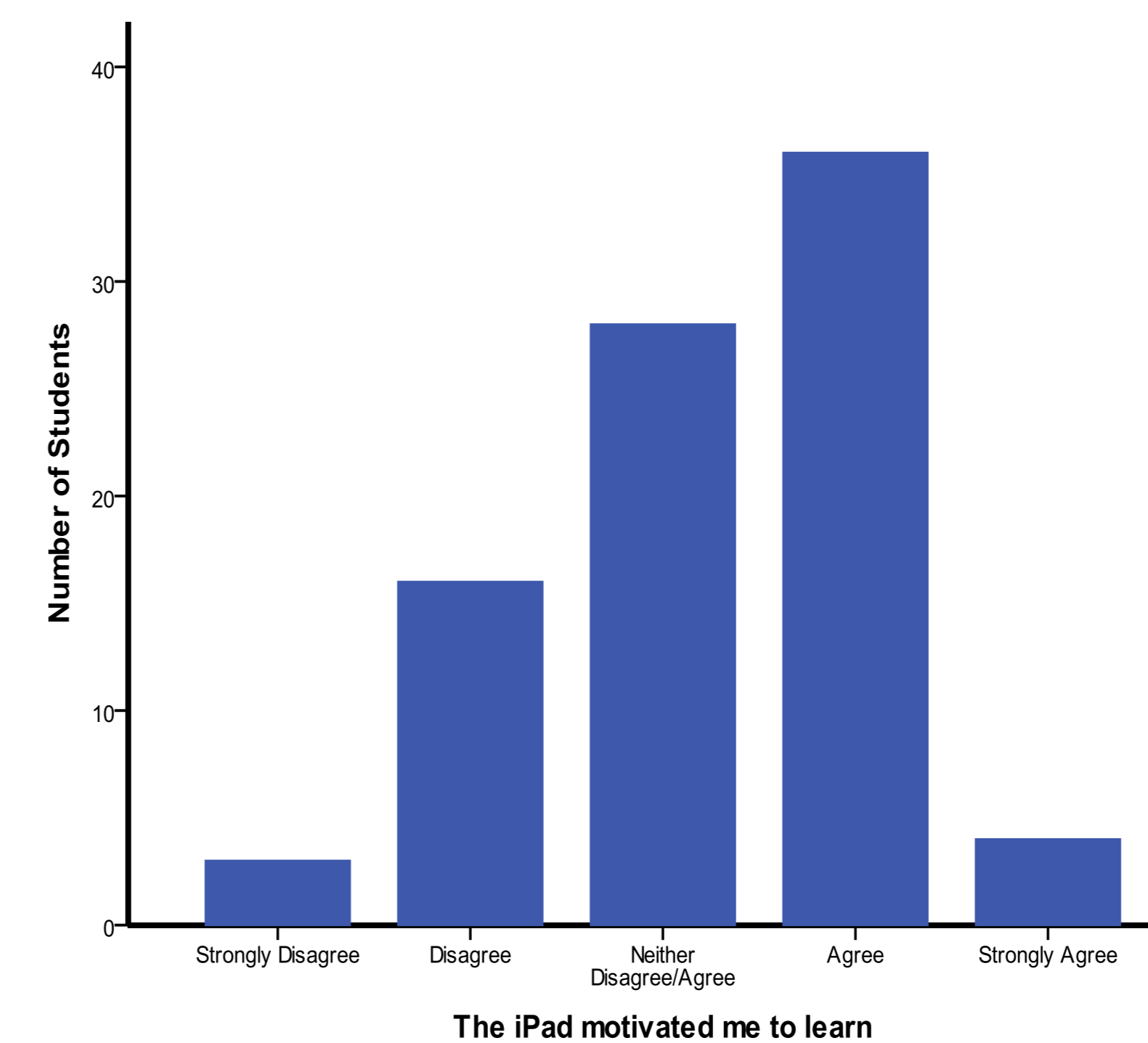
Discussion

Research into mobile learning is exciting both for its student learning potential and as a newly emerging sub-domain in educational research. Because this nascent field is the focus of emerging literature, opportunity abounds for research to make a meaningful contribution. For the 135 students who participated in this research, it appears that the affordance of a new learning tool in a blended learning environment added modestly to their existing tool-chest of technologies and provided stimulus to achieve and warm, if not enthusiastic, attitudes toward the emerging mobile learning platform of the tablet computer, and added something to their performance. Indeed, it seems that those who borrowed the iPad twice had the highest grades after controlling for age and self-management of learning (both of which are positive correlates with grade performance).

These findings are, as always, preliminary and should be treated with caution. On the face of it, the results seem to invoke notions of the Hawthorne effect in which a novel stimulus generates increased arousal and thus, for some, better performance. That those who borrowed the iPad had better grades, is perhaps indicative of the students' motivations and eagerness to learn, eagerness to use technology, and eagerness for innovation and engagement in the classroom. Certainly the results indicate that the ability to use Internet-connected technologies during class is important to students, particularly in a class on *Digital Media and Society*!