

# **TAIWANESE STUDENT ATTITUDES TOWARDS AND BEHAVIORS DURING ONLINE TESTING WITH MOODLE**

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## **Abstract**

CALL has become increasingly popular in the last few years, and with advancements in technology and the prevalence of technology in the classroom, it is easier than ever to offer new methods of teaching and testing across all disciplines. Online testing is becoming popular with course management systems such as Moodle, Blackboard, and WebCT, but research in this area is scarce and should be investigated. In this study, 46 students responded to a self-report survey questionnaire querying their attitudes towards online and paper-based testing and their habits when taking online tests. Results showed that student attitudes were mostly positive to online testing and that students appreciated being able to take online tests multiple times and not having a time limit within which to finish. Additionally, students generally logged into Moodle from home or their dorm room and tended to use desktop or laptop computers when taking online tests. These results are important for EFL teachers who wish to use online tests or teachers who are interested in using Moodle as a course management system and offering different testing methods to their students.

## **1 Introduction**

Computers have been used in language learning since the 1960s (Butler-Pascoe & Wilburg, 2003; Fotos & Browne, 2004; Warschauer & Meskill, 2000). Around the same time, computer-assisted instruction (CAI) came into existence and was used in language instruction throughout the 1960s and 1970s (Butler-Pascoe & Wilburg, 2003; Lacina, 2004; Stevens, 1989). Today, computers help teachers in their day-to day work, which involves “record keeping, searching for new information, and creating collections of teaching materials, as well as providing individualized instruction” (Provenzo et al., 2005, p. 24-25).

Robert Taylor (1980) explained three roles for the computer in education: tutor, tool, and tutee. As tutor, the computer can be used in ways similar to traditional teaching or instruction. It gives students a place to work on exercises and problem-solving activities. As a tool, it is used as word processor, database manager, spreadsheet, a graphics design system, or as a link to an information resource. As tutee, the computer is programmed to perform specific tasks. More recently, Kern (2006) has identified the role of technology in CALL as a tutor, tool, and medium. As a tutor, computers can provide instruction, feedback, and testing. As a tool, they provide access to learning materials. Finally, as a medium, computers provide the Internet, a

place for communication, publication, and learning.

The history of using computers in education shows some benefits to both instructors and learners. Computer-mediated communication (CMC), a term referring to human interaction through computers, provides learners with “comprehensible input, [encourages] learners to produce comprehensible output, and [fosters] negotiation of meaning” (Erben, Ban, & Castañeda, 2008, p. 85). Computer-assisted language learning (CALL) has also advanced by enabling English language learners (ELLs) “to construct meaning in a digital environment” (Lacina, 2004, p. 113). By using computers appropriately, teachers can provide a learning environment where learning is authentic and activities are interesting to students (Healy & Klinghammer, 2002; Lacina, 2004). Moreover, “CALL is now an integral part of L2 classrooms and is likely to assume increasing importance as technology improves” (Fotos & Browne, 2004, p. 11). Today, computer technology that “can assist in implementing curricula and activities that addresses all these goals” (Provenzo et al., 2005, p. 131) is widely used and available.

## **2 Literature review**

### ***2.1 CALL (Computer-Assisted Language Learning)***

CALL has become an increasingly dominant theme in language education in the last few years. This is likely because, as Chapelle (2008) notes, “technology underlies forms of communication responsible for increasing language contact and globalization, which in turn affect language education” (p. 585). She also notes that “technologies themselves as well as how they are constructed and configured to create opportunities for language learning are central issues which evolve rapidly with changes in technology (p. 586). Bax (2003) also touched on this when he noted that we are now in an age of *Open CALL* but need to set research agendas to move towards an age of *Integrated CALL*.

A number of studies have examined teachers and students’ participation in a computer-mediated discourse and compared it with their participation in traditional face-to-face classroom discourse (Davis & Thiede, 2000; Kern, 1995; Son, 2002; Sullivan & Pratt, 1996). The studies showed more students than teachers participated in the computer-mediated discourse. In addition, in an online communication environment, learners produced more lexically and syntactically complex sentences and engaged in a wider variety of participant roles (Kern, 1995; Pellettieri, 2000).

In Taiwan, some studies have focused on CALL (Chiang, 2007; Jou, 2006; Tai, 2005), but not many have been done on university students’ attitudes towards using a course management system as an online testing facility.

### ***2.2 Moodle***

Moodle is an open-source Course Management System created by Martin Dougiamas in 1999 (*History*, 2014). Unlike other CMSs, WebCT and Blackboard being the most well known, Moodle is free. It only requires a server running PHP and a database. It does require some technical expertise to set up, but there are many tutorials online and free help in the Moodle forums. At the time of this writing, Moodle was being used on approximately 70,000 websites

in 235 countries (*Moodle Statistics*, 2014) among a variety of universities, high schools, military organizations, airlines, and independent educators (*Usage*, 2013).

According to Stanford (2008), there are ten reasons to choose Moodle over other CMSs: it is easy to use, you can access resources via the web, it spawns interaction between the learners and tutors and allows collaboration between learners, allows learners to access independent learner pathways, allows teachers to track learner progress, and gives learners feedback on tasks. In addition, it boasts several features such as being hosted in a secure environment, automatic backups, and a detailed gradebook.

Several studies have looked at using Moodle as a CMS. Some have given simple but extensive introductions to Moodle (Melton, 2008; Dinaro, 2011). Some have found great success in moving from other CMSs to Moodle, with both teachers and learners showing satisfaction for Moodle (Beatty & Ulasewicz, 2006; Lawler, 2011; Kavaliauskienė, 2011). Others have looked at design principles for Moodle courses (Elias, 2010), while others have found that using Moodle as a CMS can enhance learner autonomy (Sanprasert, 2010).

Carvalho, Areal, and Silva (2011) found that the majority of students and faculty at a Portuguese university preferred Blackboard over Moodle, but this is likely due to the fact that Blackboard was the official LMS of the institution and everyone had accounts on it by default. Moodle was used only by some instructors and students. The researchers also found out, however, that students undertook a higher-level of engagement with Moodle, using it for online testing and submitting assignments, whereas they tended to use Blackboard only as an electronic file repository. Moreover, when students had used both Moodle and Blackboard, the majority preferred Moodle for its organization of materials, ease of access to course materials, participation in forums, and its better visual appearance.

### **2.3 Language testing**

According to Clapham (2000), “language assessment plays a pivotal role in applied linguistics, operationalizing its theories and supplying its researchers with data for their analysis of language knowledge or use” (p. 148). Moreover, she notes that language testing and classroom praxis have an effect on each other: testing leads to new teaching methods, while classroom learning and teaching lead to changes in language testing. When the article was written, Clapham was concerned about the future of computer assessment, as objectively marked items “tended to fossilize existing objective testing methods” (p. 153). However, she seemed hopeful that advances in technology could both widen the scope and increase the efficiency of computerized testing.

Several studies have examined student preferences for test format in EFL language testing (Chiste & O’Shea, 1988; Hayward, 1990; Horowitz, 1986; Teemant, 2010, 2013). Recent research in the area of dynamic testing has shown promise for EFL students (Sims, 2010; Taylor, Jamieson, Eignor, & Kirsch, 1998; Teo, 2012a, 2012b, 2014). Additionally, there has also been some recent research done with Taiwanese students. Sims (2010) studied 210 Taiwanese freshmen and compared paper- and computer-based reading exams. His results showed that there was no significant difference in the measurement of reading comprehension between the two forms. Indeed, the only major difference was that students completed the computer-based tests faster than the paper-based tests. Both paper- and computer-based exams

were shown to be equally valid for testing English reading comprehension of Taiwanese university students. Sims recommended teachers and educational programs to adapt their tests to computer platforms without being overly concerned that students will suffer from major disadvantages when taking online exams. In answer to this call, Teo (2012b) examined 68 EFL college freshmen enrolled in a general English course in Taiwan. They were given a traditional static pre-test, treatment in the form of computerized dynamic assessment, and then a post-test to look for significant difference. Her results showed a significant difference in test scores from the pre- to the post-test with scores improving considerably while maintain the same standard deviation.

In the same course two years later, Teo (2014) examined 137 Taiwanese freshmen and had them practice reading and answering questions either through computerized dynamic assessment or through traditional paper-based methods. Her results showed that the paper-based control group showed no significant difference between the pre- and post-test, with the exception of being able to find the main idea. However, the experimental group showed significantly higher overall performance compared to the control group in the post-test, as well as showing significant difference in being able to find the main idea, finding contextual clues, and making inferences. She concluded that computer-based dynamic assessment holds many advantages over traditional assessment methods and that “an effective CDA program is a win-win for both the teachers and the students” (p. 54).

While previous research has looked at Taiwanese students’ improvement on reading tests through computerized dynamic assessment, there is a paucity of research in Taiwanese students’ online testing (non-dynamic) in the area of grammar and writing. This research seeks to fill that gap and assess Taiwanese students’ attitudes towards using Moodle as an online testing facility and to ascertain what benefits and drawbacks the students perceive in using it. In order to provide a comprehensive understanding of students’ attitudes towards Moodle, a self-report survey was administered to investigate the following research questions.

RQ1: What are Taiwanese students’ attitudes towards online testing with Moodle?

RQ2: Do Taiwanese students use their books or work with friends when taking online tests?

RQ3: What features of online testing with Moodle do Taiwanese students find helpful?

RQ4: What features of online testing with Moodle do Taiwanese students not find helpful?

RQ5: Where do Taiwanese students usually login from when taking online tests and what devices do they usually use to take online tests?

RQ6: How many minutes does it usually take a Taiwanese student to finish a test on Moodle?

### **3 Methodology**

The population for this study were 46 students studying English in a Department of Applied Foreign Languages undergraduate degree program at a private university in central Taiwan. There were 22 males (47.8%) and 24 females (52.2%) ranging in age from 19 to 24 ( $M = 20.5$ ). All students were enrolled in a sophomore writing class. The classes were taught in the classroom, but chapter tests were put online for students to complete at their leisure. During the first semester of class, students completed four chapter quizzes online. During the second semester, when this research was undertaken, students completed three chapter quizzes online. All quizzes were of a similar format (mixed multiple choice and short answer) and covered grammatical subjects that were topics in each respective chapter.

The instrument was a self-report survey designed by the researcher and his assistant and administered via Google Drive. The survey was written in English by the researcher and translated into Chinese by the researcher's Taiwanese assistant, who has experience in English-Chinese translation. The questionnaire was put online and made freely accessible to all students via the use of a web browser, so participants had the option of taking the survey at their leisure without time constraints or using up class time.

The survey consisted of three parts with a total of 14 questions. Before taking the survey, demographic data, such as nationality and age were gathered for each subject. Part one consisted of seven questions assessing students' attitudes towards online and paper tests. All questions were rated on a five-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). These five items assessing the favorableness of online testing with Moodle were found to have an acceptable level of reliability ( $\alpha = .846$ ). The second part of the survey consisted of two questions assessing students' behaviors when taking online tests. Like the previous section, these were rated on a five-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). These two items had an acceptable level of reliability ( $\alpha = .739$ ). The last part consisted of five questions also assessing students' behaviors when taking online tests, such as where they log on from, what device they use to access the tests, and how long the tests take them. These questions took the form of checkboxes where the student could pick the most appropriate answer or provide their own. This research utilized a quantitative design. The survey data from the questionnaire was collected and analyzed with SPSS 22 to obtain frequencies, means, and reliability coefficients.

#### 4 Results

The first seven questions of the survey queried the respondents about their attitudes towards online testing. The results showed that students tended to show satisfaction with online testing, as the seven questions had an overall mean of 3.80. In answer to the first question, *I like taking tests on Moodle*, 30 respondents answering positively (65.3%). Another 12 answered neutrally (26.1%), and only four students answered negatively (8.6%). The second question, *taking tests on Moodle is easier than taking paper tests*, was answered positively by 32 students (69.6%), neutrally by 11 students (23.9%), and negatively by only three (6.5%). In answer to the third question, *taking tests on Moodle is less stressful than taking paper tests*, 34 students answer positively (73.9%), 10 students answered neutrally (21.7%), and only two students disagreed (4.4%). From this, one can see that students held predominately positive attitudes towards online testing, although there were an average 11 students that felt neutral towards them.

The next two questions in the survey were counterbalancing questions, querying students about their attitudes towards paper testing over online testing. Based on the results of the first three questions, one might expect that students will tend to be neutral or disagree with most of the statements. Indeed, the answers to questions 4 and 5 are predominately neutral or negative. Question 4, *taking paper tests is easier than taking online tests*, had 26 students (56.5%) answering neutrally, and only 14 students (28.3%) and 7 students (15.2%) answering negatively or positively, respectively. Question 5, *taking paper tests is less stressful than taking online tests*, was answered negatively by 23 students (50.0%), neutrally by 20 students (43.5%), and positively by only 3 students (6.5%).

Questions 6 and 7 queried students about the usefulness of online testing for learning and reviewing grammar and vocabulary. In answer to question 6, *online tests are useful for learning grammar and vocabulary*, 28 students (60.9%) answering positively, 14 students (30.4%) answering neutrally, and only four students (8.7%) disagreeing with the statement. Similarly, for question 7, *online tests are useful for reviewing grammar and vocabulary*, 31 students (67.4%) agreeing with the statement, 11 students (23.9%) answering neutrally, and only four students (8.7%) disagreeing with the statement. Table 1 shows the mean scores for all seven questions in part one of the survey.

In part two of the survey, questions 8 and 9 queried students about their habits when taking online tests. Question 8 asked students to agree or disagree with the statement *when taking online tests, I will use my book as a reference*. Results showed that 30 students (65.2%) agreed with the statement, 11 students (23.9%) neither agreed nor disagreed, and only five students (10.9%) disagreed. The responses to question 9, *when taking online tests, I will work with friends*, were more equal and spread across the range of answers than previous questions. This question had eighteen students (39.1%) answering positively, 13 students (28.3) answering neutrally, and 15 students (32.6%) answering negatively. Table 2 shows the mean scores for questions in part two of the survey.

**Table 1. Student attitudes towards online testing**

Question	<i>M</i>	<i>SD</i>
Q1: I like taking tests on Moodle.	3.89	1.100
Q2: Taking tests on Moodle is easier than taking paper tests.	4.00	0.943
Q3: Taking tests on Moodle is less stressful than taking paper tests.	4.28	1.026
Q4: Taking paper tests is easier than taking online tests.	2.78	0.964
Q5: Taking paper tests is less stressful than taking online tests.	2.41	0.832
Q6: Online tests are useful for learning grammar and vocabulary.	3.76	0.993
Q7: Online tests are useful for reviewing grammar and vocabulary.	3.87	1.002

The next part of the survey asked students about their favorite features of online tests and how they usually took them. Question 10 asked students to identify their favorite feature of online tests and gave them several choices or the ability to fill in an additional answer. Results showed that students enjoyed not having a time limit (13 respondents, 28.3%), working together with each other to complete the tests (12 respondents, 26.1%), and being able to take a quiz multiple times (10 respondents, 21.7%). Question 11 asked students to identify a feature of online testing that they did not like and again gave them several choices or the option to write in another answer. Oddly, in comparison to question 10, 31 respondents (67.4%) answered that they did not like having to take the test multiple times in order to get a good score. Only 10 students (21.7%) answered that they did not like having to take the test outside of class. Only three students (6.5%) and two students (4.3%) checked the other two responses, *not being able to see correct answers right away* and *not having easy access to a computer/Internet*, respectively.

**Table 2. Student behaviors when taking online tests**

Question	<i>M</i>	<i>SD</i>
Q8: When taking online tests, I will use my book as a reference.	3.72	1.089
Q9: When taking online tests, I will work with my friends.	3.07	1.340

Questions 12 and 13 asked students where they usually take online tests and what device they usually use to take online tests, respectively. In response to question 12, results showed that the majority of students take the tests from where they live, answering either *home* (23 students, 50.0%) or *dormitory* (19 students, 41.3%). Only three students (6.5%) did it at the university or in a classroom, and only one student (2.2%) did in transit. The results to question 13 showed that students tended to use desktop computers to take the online tests (26 respondents, 56.5%), but many also used laptops (16 respondents, 34.8%). Only four students (8.7%) used smartphones or tablets. The final question asked students to estimate how much time they usually spend to finish an online quiz on Moodle. Results showed that most students spent 30-40 minutes (14 respondents, 30.4%) or 40-50 minutes (12 respondents, 26.1%). Only two respondents (4.4%) answered that they take 10-20 minutes, and only four students (8.7%) answered that they take longer than 60 minutes to finish an online test. The full results for the entire survey can be seen in the appendix.

## **5 Discussion**

In answer to research question 1, survey results showed that students held mostly positive attitudes towards online testing. Moreover, students found online testing useful for both learning and reviewing of grammar and vocabulary. This may be because the respondents in this study are mostly low-proficiency learners, most of whom will struggle to achieve a B1 rating in English proficiency tests before graduation. From their point of view, the time afforded during online testing to look up or review definitions may be beneficial to learning or reviewing grammar and vocabulary.

Research questions 2 asked whether Taiwanese students use their books or work with friends when taking online tests. As one might expect, most students surveyed took part in both of these habits. Naturally, this is to each student's advantage, as the online tests had no time limits and students were recommended to use their books to look up the answers or to work together in order to get as many answers as correct as possible.

In answer to research questions 3 and 4, respondents showed that they appreciated not having a time limit when taking online tests and that they could take the test multiple times. During online testing, students were given the chance to take the online test three times with the highest grade achieved counting as the final grade for the test. This was thought by the instructor to provide more benefits to the students as they could take it once, see their score, and then go back, review, and take the test again for a higher score. Oddly, however, the vast majority of students did not like having to take the test multiple times. Certainly, this meant more time spent taking tests for most students, but it almost assuredly also meant a higher chance of getting a better grade. A more qualitative study with follow-up interviews with these students may reveal the attitudes towards these conflicting findings.

In answer to research question 5, most students logged in to take tests from either their family's home or from their dormitory and most tended to use desktops or laptops, opting not to do it on their smartphones or tablets. This is likely due to the fact that the course was using an older version of Moodle (1.9 at the time of this research), and the website would not display well on smaller screens. Upgrading to a newer version of Moodle would provide more ability to offer different layouts for smartphones and tablets as well as improved performance, which may mean that smaller tests could be offered in class. Since students felt that having to

take the test multiple times and having to do outside of class were the two most serious drawbacks, offering shorter, simpler tests over each section of the book, for example, and having students login and take the test on their smartphone may prove to be beneficial. Future research in this area will need to explore this idea.

Finally, research question 6 asked how many minutes the average Taiwanese student spends when taking an online test in Moodle. Most students tended to take 30-40 minutes or 40-50 minutes to finish a quiz on Moodle. Since most of the quizzes consisted of approximately 50 questions, this does not seem like an inordinate amount of time, especially given that students indicated that they were looking up answers in their books.

## **6 Conclusion**

This research found several important findings for teachers and testers in the EFL discipline. First, should students be given the chance to take online tests, they appreciate not having a time limit within which to finish. Students should also be given a chance to use their books when taking online tests or work together. In reality, if students are told to take online tests outside of class, the teacher cannot police each student to ensure that they do not use books or work together, so such activity should not be policed. Indeed, using the books as reference and working together may result in better testing results, but it may also result in either positive or negative backwash. This should be investigated further to ensure that no negative backwash is resulting from this practice.

Although students appreciated being able to take online tests multiple times, they also responded that having to take it multiple times is not ideal. This suggests that each teacher should open a dialogue with their students and, if the test is able to be taken multiple times, the teacher should explain to the students why this is and what benefits it may have. Certainly, most students would like the ability to try to score better on online testing, so the finding that they had mixed feelings about this feature was confusing. Future research of a more qualitative nature that takes into account students' attitudes as revealed through post-survey interviews may be more beneficial and shed light on this finding.

This study was not without its limitations. First, due to the very small sample size, no generalizations can be made about Taiwanese student attitudes in general or student attitudes towards Moodle testing in general. Another limitation is that, as with all self-report survey data, respondents may have answered with how they believe the researcher would want them to answer, not with how they actually felt. This is unavoidable in self-report surveys, and as researchers we must simply trust that the survey results are factual and the true opinions of respondents.

This study does fill a research gap in that it provides crucial data for examining student attitudes towards online testing and the usefulness of certain features of Moodle testing in general. Future research should be done on a much larger scale in order to investigate various factors about online testing such as usefulness, helpfulness, and which features students find most beneficial to their online testing. Additionally, future research can look at different populations and students of varying proficiency levels in addition to students of other disciplines. With advances in technology, it would be possible to create many different types of questions to be tested and have them scored accurately and quickly resulting in much more

interesting, variable, and ultimately beneficial tests for students. CALL is still a young paradigm and the many of the benefits and limitations are just being discovered and worked out. It will be very interesting to see how CALL may change online testing and what other benefits we can unlock for our students as we open the world of online testing to them and help them become better students through the use of better online tests.

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## Appendix

### Moodle Survey

This survey is being conducted determine student attitudes towards online testing. Do not answer according to what you think you should do but according to what you actually believe. Please be as honest as possible. All responses will remain anonymous. Please respond to all questions. Thank you for your willingness to participate.

#### Part I

**Directions:** Respond to the questions below by circling the number that comes closest to representing your opinion. If you strongly disagree with the statement, circle #1; if you strongly agree with the statement, circle #5.

1. I like taking tests on Moodle.

	Strongly disagree			Strongly agree	
	1	2	3	4	5
Frequency	2	2	12	13	17
Percentage	4.3%	4.3%	26.1%	28.3%	37.0%

2. Taking tests on Moodle is easier than taking paper tests.

	Strongly disagree			Strongly agree	
	1	2	3	4	5
Frequency	0	3	11	15	17
Percentage	0.0%	6.5%	23.9%	32.6%	37.0%

3. Taking tests on Moodle is less stressful than taking paper tests.

	Strongly disagree			Strongly agree	
	1	2	3	4	5
Frequency	1	1	10	6	28
Percentage	2.2%	2.2%	21.7%	13.0%	60.9%

4. Taking paper tests is easier than taking online tests.

	Strongly disagree			Strongly agree	
	1	2	3	4	5
Frequency	8	10	17	5	6
Percentage	17.4%	21.7%	37.0%	10.9%	13.0%

5. Taking paper tests is less stressful than taking online tests.

	Strongly disagree			Strongly agree	
	1	2	3	4	5
Frequency	6	7	26	5	2
Percentage	13.0%	15.2%	56.5%	10.9%	4.3%

6. Online tests are useful for learning grammar and vocabulary.

	Strongly disagree			Strongly agree	
	1	2	3	4	5
Frequency	1	3	14	16	12
Percentage	2.2%	6.5%	30.4%	34.8%	26.1%

7. Online tests are useful for reviewing grammar and vocabulary.

	Strongly disagree			Strongly agree	
	1	2	3	4	5
Frequency	1	3	11	17	14
Percentage	2.2%	6.5%	23.9%	37.0%	30.4%

8. When taking online tests, I will use my book as a reference.

	Strongly disagree			Strongly agree	
	1	2	3	4	5
Frequency	1	2	3	4	5

Frequency	3	2	11	19	11
Percentage	6.5%	4.3%	23.9%	41.3%	23.9%

9. When taking online tests, I will work with friends.

	Strongly disagree			Strongly agree	
	1	2	3	4	5
Frequency	8	7	13	10	8
Percentage	17.4%	15.2%	28.3%	21.7%	17.4%

## Part II

**Directions:** Answer the following questions by marking the most appropriate response. Please check only one answer for each question.

10. What is your favorite feature of online quizzes?

Item	Freq.	%	Response
a.	13	28.3%	No time limit
b.	12	26.1%	Working with partners
c.	10	21.7%	Being able to take it multiple times
d.	5	10.9%	Using the book
e.	5	10.9%	Instant grading
f.	1	2.2%	Instant feedback
g.	0	0.0%	Other (please specify):

11. What feature of online quizzes do you not like?

Item	Freq.	%	Response
a.	31	67.4%	Having to take it multiple times
b.	10	21.8%	Having to do it outside of class
c.	3	6.5%	Not being able to see correct answers right away
d.	2	4.3%	Not having easy access to a computer/Internet
e.	0	0.0%	Other (please specify):

12. From where do you usually logon to Moodle?

Item	Freq.	%	Response
a.	23	50.0%	Family home
b.	19	41.3%	Dormitory
c.	3	6.5%	University/Classroom
d.	1	2.2%	In transit
g.	0	0.0%	Other (please specify):

13. What device do you usually use to logon to Moodle?

Item	Freq.	%	Response
a.	26	56.5%	Desktop PC
b.	16	34.8%	Laptop
c.	4	8.7%	Smartphone/Tablet

14. How many minutes does it usually take you to finish an online test?

Item	Freq.	%	Response
a.	14	30.4%	30-40 minutes
b.	12	26.1%	40-50 minutes
c.	8	17.4%	20-30 minutes
d.	7	15.2%	50-60 minutes
e.	4	8.7%	60+ minutes
f.	1	2.2%	10-20 minutes