Tablets in the Classroom

Job Aid



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Introduction

The new tablets that Edugood introduced to some of their teachers in Seoul, South Korea started out great. The teachers and students enjoyed having this new learning technology in the classroom. Edugood was able to fulfill their contractual obligations to use tablets in the classrooms for at least ten minutes. Everything was fine, until it wasn't. Edugood started getting complaints from the teachers and parents, that the tablets weren't working well and that some teachers weren't using them at all. A Performance Analysis (PA) was conducted to see if there were some possible solutions to this discrepancy. Here are the results from said report.

Figure 1: Possible Solutions to Drivers from 'Tablets in the Classroom' PA

Driver	Possible Solution	Who can solve this
The tablets are too slow and often freeze.	Buy newer tablets that run faster. OR Create a more streamlined app. OR Uninstall any unnecessary software.	Edugood Edugood tech Teacher
The tablets shut down randomly	Close all apps except the Edugood app. OR Turn off the tablets when not in use.	Teacher Teacher
The mirror-cast runs hot	Use tablets that connect directly to the TV OR Turn off the mirror-cast when not in use.	Edugood Teacher
The tablets have a charging problem	Buy better chargers. OR Buy newer tablets.	Edugood Edugood
There is no WIFI	Provide WIFI in the classroom. OR Preload the tablet with all necessary materials.	Edugood Edugood

The PA report analyzed the actuals and optimals and gave some possible solutions to the drivers. In this report, we will look at how to turn some of these 'Possible Solutions' into a 'Job Aid' that can assist the Edugood teachers by providing them with a reference guide on how to speed up their tablet. The teachers that originally participated in the PA were questioned further to see if they think the Job Aid (JA) will work for them. The results of pilot testing are written below and and will illustrate whether the teachers were able to meet the objectives created.

Analysis Techniques

In order to perform an accurate Task Analysis, I was able to get my hands on one of these tablets. Upon initial usage, it is clear why the Edugood company wanted to include these tablets in their curriculum. The app content was really easy to use and made the subject matter jump out of the page. It wasn't until after about five minutes

of usage until I started noticing problems. Loading new content took up to a minute and sometimes required a timely download. After about eight minutes, the tablet froze and when I tried to reload the app, the tablet crashed and had to be reset. After looking inquisitively at the tablet's owner, he said "this happens all the time."

Based on this Task Analysis, it's clear that the discrepancy outlined in PA showed some merit. A Content Analysis was required to see if Edugood was aware of the performance issues with the tablets. I was able to sit down with one of the lead developers of the app and head of the tablet team at Edugood. We took a look at a tablet that was being prepped to be sent out to a new school, as well as the tablet that was used in the aforementioned Task Analysis. It was clear from the first tap of the app that there was some issues that were limiting performance on the 'seasoned' tablet. After examining and comparing each tablet for about 20 minutes, we concluded that after extended use, the tablets show a significant decrease in performance, and we attributed this poor performance to both hardware and software issues.

Looking at the hardware first, we agreed that better tablets and peripherals needed to be purchased in the future. Spending a little more money on tablets that support native casting and have higher RAM and battery life can turn multiple drivers into optimals. There would be minimal issues with slow or freezing tablets and the issue of tablets randomly shutting down would be eliminated. Native casting would allow for the use of a more fine-tuned and integrated casting device like Google's Chromecast to project the content on the screen efficiently and without overheating. I talked with the company's manager about this and we decided that Samsung's Galaxy Tab A would do everything we needed and that it's easily available in the Korean market and is within the company's budget.

In terms of software, the tech lead and I decided that best way to improve existing tablet performance would be to do some tweaks to the Android OS. He explained and I know somewhat through my own tablet and smartphone experience, that the system can get bogged down with unnecessary apps and settings as soon as one starts modifying the interface. We decided that the best way to keep the tablets running smoothly is to keep the tablets as close to factory fresh as they can be. This includes resetting any modifications to the interface and settings. It also includes turning off features and closing or removing any extraneous apps. These adjustments provided the backbone for the Job Aid, which can be seen in Appendix A and which was pilot tested with the participating teachers.

After the creation of the JA, an audience analysis was conducted with three out of the nine participants from the PA. These teachers were able to give feedback based on initial prototype of the JA. Their assessment and responses to the initial survey have proven to most enlightening, as they are the ones on the front lines using the tablets in question. Before we look at the pilot test and results, we should look at the objectives we're looking to accomplish with the JA.

Objectives

The objectives for desired performance is relatively simple, as the optimals are not difficult to accomplish with a little knowhow. Once the teacher makes the necessary and routine changes, there shouldn't be any problems with using the tablets to the company's expectations. These are the objectives:

- Given an Edugood-provided tablet and Job Aid, the teacher will be able to modify any settings so that the tablet does not freeze or shut down after ten minutes of use.
- Given an Edugood-provided tablet, the teacher will be able to use the tablet as part of the lesson for at least ten minutes per class without any problems like freezing or shutting down.

Pilot Test

The Job Aid was sent out to all of the teachers that took the survey from the PA, and only three responded with some feedback. Along with receiving the JA, the teachers were given a survey regarding the JA's usefulness. The questions were roughly based off Rossett and Gautier-Downes' JA feedback sheet from *Handbook of Job Aids* (1991, pg. 101) and can be seen in Figure 2 below.

Figure 2: Survey regarding the 'Speed Up Your Tablet' Job Aid

Question	Yes/No	Comment/Suggestions
Do you have any questions about this aid?		
Do you know how to use this aid?		
Are the instructions/wording clear?		
Are there any errors/typos?		
Are there any parts that are hard to follow?		
Are there any parts that need more information?		
Are there any parts that need less information?		
Would you use this?		
Do you have any suggestions?		

Pilot Test Interpretations and Revisions

Giving the above survey to the teachers really helped to create a finalized Job Aid that will be helpful in meeting the objectives stated above. The first thing that two of the teachers asked was why this needed to be a flow chart. Both teachers knew how

to use the aid, but thought the repetitive “Is your tablet running fast?” was “pointless” and “unnecessary”. Second, all of the teachers were clear on how to follow the steps, but weren’t sure of the specific reasons why. The stated reason for the JA was to help inform on how to speed up the tablet, but the teachers weren’t sure what individual step did or how often to perform the action.

All the teachers said the instructions were clear and that there weren’t any typos or errors. One teacher said step 4 of ‘Clear you Cache’ is a bit “confusing”. It says ‘Tap any app that is left’ and she wasn’t sure which ones were safe to clear. Actually she was a little confused on what ‘cache’ is and why we need to clear it. A description was added to address this. This teacher also thought that the ‘Clean up the home screen’ action is too “no-brainer” and thought it wasn't as necessary as the rest of the steps. This step was replaced. Besides the fact that everyone said the ‘Turn off the animations’ instructions were missing, nobody said there needed to be more information or less information and everyone said they would use the Job Aid.

Based on what the teachers suggested, it was clear the content was helpful, but that there were some formatting issues that needed to be improved and a couple of minor tweaks to the actions and steps that needed to take place. The flowchart was designed to place actionable steps in order to get the tablet back to full speed. But after reading the feedback, it’s apparent that steps or flow isn’t necessary and that the action steps can be placed without any regard to order.

Taking these critiques into account, the job aid was changed to be a lot simpler to use. Instead of including all the actions and steps on one sheet, the actions are now enlarged on one side, and the specific steps to perform this action and reasons why are on the back. The JA can be easily printed on paper and then laminated together so that the teacher can quickly see what to do on one side, and then reference how to specifically do it on the other side. The modified JA can be seen in Appendix B.

Solution System

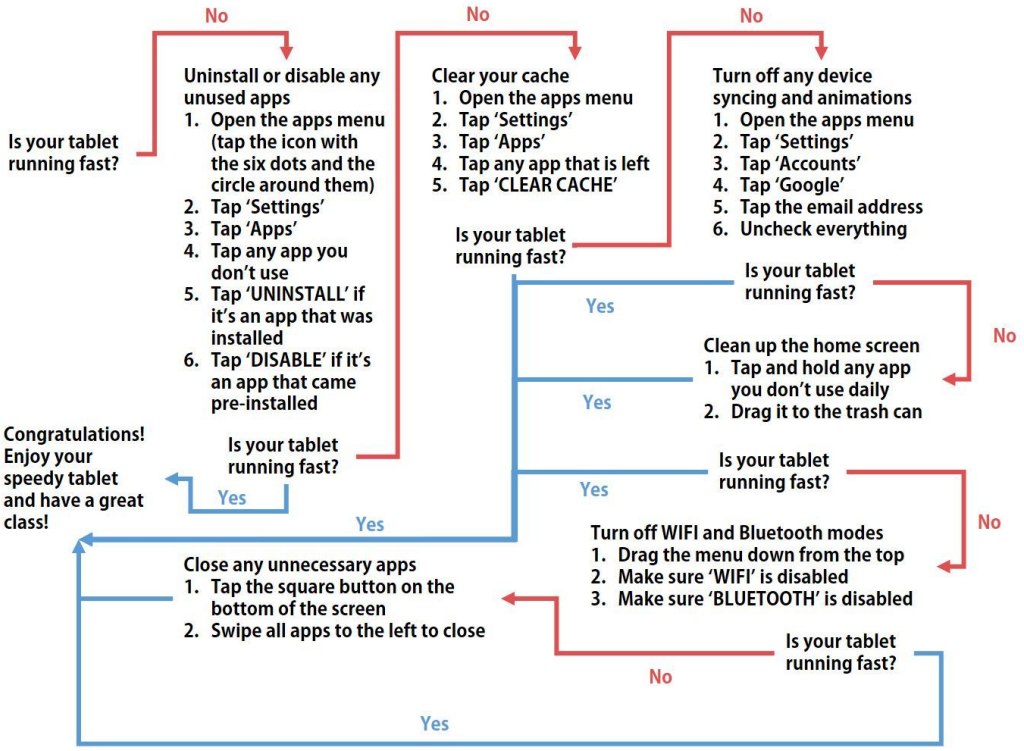
In the original ‘Tablets in the Classroom’ Performance Analysis, some drivers were found that stopped actuals from becoming optimals. The Edugood company wanted their teachers to use tablets in their classroom for at least ten minutes, and this wasn’t happening. In the PA, we discovered exactly what these drivers were from the teachers themselves and some possible solutions to this discrepancy. In this report, we did a task, content and audience analysis to find out an adequate solution system. Objectives were constructed, pilot tests were given and feedback was received. A modified Job Aid was created that meets all the criteria of the objectives in a format that is easy for the teachers to understand and convenient for them to use. By adopting this JA in the classroom, it’s my hope that all of the teachers at the Edugood company that use tablets start operating at their optimal performance.

References

Rossett, A. & Gautier-Downes, J. (1991). *Handbook of Job Aids*. San Francisco: Pfeiffer.

Appendix A

Pilot Tested Job Aid



Appendix B

Final Job Aid

