QA Metrics

End of Second Release

Document Control

Editor	Version	Date	Update
Alex Cash	0.1	02/06/2015	Created Document
Alistair Jewers	0.2	02/06/2015	Reviewed metrics
Samuel Raeburn	0.3	03/06/2015	Reviewed metrics
Calum Armstrong	0.4	03/06/2015	Replaced company logo on page 1. Reviewed metrics
Daniel Berhe	0.5	03/06/2015	Reviewed metrics
Sam Hall	0.6	03/06/2015	Reviewed metrics
Lewis Thresh	0.7	03/06/2015	Reviewed metrics
Emmanuel Olutayo	0.8	03/06/2015	Reviewed metrics
Penny Nicole	0.9	03/06/2015	Reviewed metrics
Jake Ransom	1.0	03/06/2015	Reviewed metrics

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1.0 Project Manager – Alex Cash

Metric	Measurement
Team is content with their work and feel confident they know what their tasks are.	Continue to organise regular group meetings but ask the group if they feel well organised, content, and know their tasks. If not, how it can be improved.

Review
From asking team members I once again feel that this has been a success. There have been a number of different tasks going on at once but I feel like this was managed well and team members were kept on track. This would have been easier if we were working full time in one office as communication would have been easier, but I think that although most communication was either via email or in meetings, people were confident that they had work to be getting on with at all times. With the help of the implementation managers we managed to find work for people whenever they had free time and facilitated good progress throughout.

All deliverable deadlines met with work of a good standard.	Ensure all documents/deliverables are submitted as per the deadline, ensuring beforehand that the whole team is happy with the quality of the work that is being submitted.

Review
At the end of the project, we can say that we have successfully met all deadlines have been met on time. On two occasions stakeholders have been asked if it was possible to push deadlines back a short amount of time to accommodate the workload outside of the module of our finance managers. The stakeholder was more than happy to agree to this and as such I consider all deadlines met. Code reviews and document reviews have ensured quality throughout and have resulted in high quality content being produced by the whole team.

Final product is at least representative of the initial plan (not required to be exactly the same) and is of a high standard.	After completion, compare the finished product with the initial product plan to see if we have met our initial requirements. Also, gather opinions of others (outside of the team) on whether the product is of a high standard.

Review

It is safe to say, that now we are at the end of the project that not only has the software met expectations, it has clearly exceeded them. Our final products not only meet expectations, but they do so in exactly the way we originally intended. I feel partly responsible for ensuring this has happened on a whole, by allocating people to tasks they are good and ensuring other work is assigned elsewhere so as to streamline our work. There is only one aspect that has not been completed which is a user being able to pause and resume lessons at a later date. This had to be de-scoped because of the nature of Java but could be added at a later date. Other than this, all user stories have been satisfied excellently.

Final product delivered on time.	Ensure product is in a finished stage when it is submitted to the customer on the deadline. This will be dependent on the team's confidence that the product has met our requirements.

Review

This metric has been met, with the final code being completed just in time for the demonstration, as planned. This gave us the maximum available time to produce the product whilst still allowing time to test and verify the end result. I am very happy with how the products have turned out and they have both been delivered on time and to specification. I once again feel as if I have played a significant role in keeping the team moving through the work and keeping work on track.

2.0 Contracts and Documentation Manager - Calum Armstrong

Metric	Measurement
Contractual errors	Number of amendments made to contracts, or employee dissatisfaction as a result of a missing clause causing problems in code integration / implementation
Review	
No new contracts had been made since release 1. *Both bought and sold code complied with contract specifications and were easily integrated without any need to return code to authors for corrections. There were never any issues raised regarding missing functionality, and therefore contracts are deemed as successful.*	
Documentation availability	Number of requests for documents / updated documents not made publically available
Review	
Asides from timesheets and payroll updates, all documents have been available upon request, however it was sometimes required to advice where exactly these documents were located in the Google Drive. Due to the number of documents however and the implication of a new filing structure, this is understandable. *In the case of timesheets, as before, this was limited by when these were handed to the Contracts and Documentation Manager by employees. It should be noted that it was often required to chase up individuals for timesheets, as can be seen in company minutes, and in general payroll was updated swiftly once all timesheets had been completed for a single week.*	
Timesheet management	Number of timesheet summaries provided to finance by mid-day Tuesday
Review	
This has rarely been the case due to late hand in of timesheets. The issue has been discussed as mentioned above however action still needs to be made if as a company we wish to continue implementing this constraint.	
Document archiving	Number documents that became corrupted / were lost and were unrecoverable due to a lack of backups
Review	
No documents have been lost, and an increased awareness of document control has insured a better quality of backup in case any issue does arise in the future	

3.0 Specialist Software Developer – Daniel Berhe

Metric	Measurement
Features implemented vs features planned for specific sections of the program	Compare the list of finished and tested to the planned ones
Review	
A document listing the planned vs implemented features as well as the reason for the unimplemented features has been created. Please look at the document named *Planned_vs_Implemented_Features*	
Bug tracking of specific sections of the program	Record the number of bugs found during testing of LearnEasy by the testing team
Review	
Reported bugs associated with LearnEasy have been recorded in a document. Please look at the document named BugTracking_V1.1	
Comments in code	Comparison of lines of comments and lines of codes. Documentation per class.
Review	
Adequate comments have been added (by the person responsible for the class). Later reviewed/modified by Lead Software Developer and Specialist Software Developer. Currently the comment to code ratio is 23%. When counting the lines of code; comments and empty lines were ignored. Each class in the project was checked for the presence of java documentation comments by the Lead Software Developer and Specialist Software Developer. Documentation code was added to class which lacked it. At this point 34.4% of the comments are Javadoc comments.	

4.0 User Experience Designer – Sam Hall

Metric	Measurement
Icons	Check that any icons required by the pre-existing design are completed on time and are of high quality
Review	
All icons are now completed and meet design specs	
Inconsistent Design	Keep liaising with assistant UX Design, contract and documentation teams to ensure that design continuity from company documentation through to application is met
Review	
Finished design is consistent with initial prototypes	
Appropriateness	Ensure design meets spec as defined in functional spec. The design should allow for all the features to be implemented with no design done by the coding team
Review	
Implemented design features all of the features as detailed in the prototype except tabs to navigate the pages which had to be replaced with a drop down menu	
HTML Website/Tour	Websites are completed on time, are easy to navigate and show all the required information
Review	
Website features a good presentation of the product and resizes correctly for mobile. HTML Tour successfully displays all information.	

5.0 Lead Software Developer - Alistair Jewers

Metric	Measurement
Features implemented vs features planned	Compare the list of finished and tested features to the original set of required and potential features. This comparison should be made during each iteration, for that iteration's feature set.
Review	
All features are recorded in the 'Github issues' platform and tagged with the iteration for which they are required. Each feature is given an assignee who is responsible for its completion. Once a feature is complete it's 'issue' is closed. The progress of each iteration is tracked automatically, and the number of open and closed issues for each iteration can be easily compared. *- 68 / 69 issues tagged as features have been closed.* *- Iterations 1 & 2 report 100% feature completion.* *- Iteration 3 reports 98% feature completion.* *Feature tracking has been an overall success with all the features in the revised functional specification being met by the end of the coding process.*	
Time spent coding vs planned.	Monitoring the start and end of the coding process overall, as well as the start and end of each iteration.

Review

The 'Github' platform branching system and network graph feature are being used to track the development process and the start and end dates of individual features.

- Iteration one implementation began on 26th January and finished on 15th February. There was some overlap with other iterations as some iteration 1 code, especially the parser, had to be refactored several times. The final issue associated with iteration 1 was closed on 26th May, but included refactoring work that ran alongside the next two iterations.

- Iteration two implementation began on 16th February and finished on 15th April with the sale of the media handlers. Again some refactoring work ran in parallel with the next iteration.

- Iteration three began on 19th of April, 4 days late, and finished on 31st May. Code clean up continued until 3rd June. Coding therefore finished approximately one week later than the ideal completion date.

Overall the coding process ran approximately to schedule, although some feature creep towards the end of the allocated coding time led to a slight overrun. Due to the involved nature of the software it was also necessary to cross over some refactoring tasks between iterations.

Bug tracking.	Use bug or issue tracking software to maintain a list of all bugs that have been identified and whether they have been fixed and tested. Bugs should be assigned to relevant people for fixing.

Review

The 'Github Issues' platform is being used to track all bugs and their status, as well as code changes that affect or fix them. Bugs have assignees designated to fix them, and notes relating to their severity.

- 58 / 59 issues tagged as bugs have been closed.

- All bugs associated with iterations 1 and 2 have been closed.

Bug tracking has been successful overall, with the vast majority of the bugs identified in testing being fixed and closed.

6.0 Assistant Finance Manager – Penny Nicole

Metric	Measurement
Accuracy of financial information	Check financial documents with the Finance Manager, and other employees with financial knowledge. Produce weekly financial reports, and use them to check consistency of financial information in related documents, including the Payroll and the Financial Reports.

Review
Worked with other member of Finance Team (Finance Manager) on all documents excluding Weekly Financial Review. Though not heavily involved in financial projections over the next five years, other employees with financial knowledge heavily influenced the final projection documents.   *Produced weekly financial reports, and updated some from iteration 1, when they were not consistent with other financial documents. Therefore, used weekly financial reviews to update the final report hand-in with correct data (specifically labour hours, checking consistency with related documents.*   *Did not get two other members of the company to check most documents except the final financial predictions, although worked with the Financial Manager heavily with most documents.*

Pay Back period	Pay interest promptly.

Review
Paid interest every week after and including the week we got the loan, as shown in the Final Review Document and future financial projections.

Operating expense control	Check weekly accounts against what has been predicted in the Financial Reports.

Review
The two major differences between our predictions and the company's true expenditure were when we go the loan, and the amount of money we paid for labour. While the labour cost was significantly over estimated, it enabled the company to have enough money to carry itself in the future without asking for a second loan.

Financial Prediction	Produce financial plans regarding the development of the initial product in the first six months of business.

Review
Done in the first iteration; not applicable in the second iteration. See previous metric.

7.0 Finance Manager – Emmanuel Olutayo

Metric	Measurement
Return on investment	Check returns with appropriate department in company
Review	
The investment the company made into media handlers seemed to be a very good Choice as we have not had a lot of problems with it	
Pay Back period	Pay interest Promptly
Review	
We Got the loan from the financial backer therefore we were able to start paying the interest on the loan and all our personnel.	
Operating expense control	Check weekly accounts against what has been predicted
Review	
We have been doing this appropriately but there has been a few weeks where the prediction of labour hours were way off and this is because people were not working like they were supposed to therefore our expenditure as a company was lower than predicted.	
Return on assets	Make sure the most suitable group member is doing what is required of them as efficiently as possible therefore saving money.
Review	
Everyone seems to be working at their own pace and efficiently too and peoples hours reflect this but also some people are helping others so the work can be done quicker and more efficiently.	
Legitimacy of Financial Documents	Check cash flow every month or week to make sure all cash inflow in financial documents add up.
Review	
Before the hand in of any financial document this document is reviewed and checked to make sure it is as accurate as it can be. Nevertheless we have had some slip ups where values were inputted wrong but these are corrected and sent to the financial backer as soon as possible .	
Legitimacy of transactions	Check that copies of receipts and invoices of sales transactions have been kept and also kept track of by the documents manager. And are available when needed.

Review
This has not been checked appropriately.

8.0 Lead Software Tester – Samuel Raeburn

Metric	Measurement
Features implemented vs features tested.	Compare list of features with list of features tested obtained from test reports.
Review	
The task we set ourselves was a difficult one, going well beyond the scope of the project. Due to this there were inherently a very large number of features implemented. I do believe however that by way of distributing test reports to the team and by personally prioritising testing over developing that all the features implemented have been tested. Many features (all those on the media handlers included) have been tested multiple times.	
Software modules vs test reports.	Compare list of features with list of features tested obtained from test reports.
Review	
The main modules of software created were the XML Parser, the XML writer, the runtime data class, the renderer, the GUI, the editor and all of the media handlers. *All of the above have been tested with many being tested multiple times, for example the editor was continuously tested throughout its development.* *As well as individually testing each software module various integration tests were carried out in order to confirm that each module behaves as desired when used in conjunction with other modules.* *There were a total of 18 distinct (not retests) test reports.*	
Changes due to bugs vs test failures	Failures in testing should result in a change in code.

Review

Each time a bug was found by me or by anybody completing one of my distributed test reports, an issue was created on the GitHub. These issues notified anybody in our GitHub so everybody knew what bugs were apparent throughout the development.

The "test failures" document indicates that there were a total of 69 major test failures, with the term major being used to define a bug where the solution was not thought to be a simple refactor of code. If we take the same definition of changes as we did for major, only 6 of these major failures remain unfixed (not through lack of trying).

Meaning the changes due to major bugs is 63.

9.0 Marketing Manager – Jake Ransom

Metric	Measurement
Brand Awareness	Polls, such as surveys
Review	

The marketing has improved brand awareness through the use of surveys however more surveys to a wider pool would have made more of an impression.

Advertising strategy, techniques and methods have been researched to further market the company, however since the product was only completed at the very end of the allocated time, the advertising strategy was not properly tested.

Customer Satisfaction	Customer feedback through reviews
Review	

Methods of how customers could leave reviews was researched which is documented in the marketing report. However the product wasn't finished in time to allow a customer trial to take place.

Market Share	Market Research
Review	

The market share was investigated thoroughly through the use of surveys and how much of the market our competitors currently held.

The potential share of the market is quite large given that not many other products like this exist. The surveys overall showed a good demand for the product and a gap in the market.

To fully show how much of the market the company holds, a review after product release for each month would be needed.

Sales	Amount of units sold
Review	

From the market research looking specifically into the statistics of teachers & schools and using the surveys showing the interest in the product; the company was able to identify the sales projections for the first 5 years.

To properly test this metric, a review of sales at the end of every year would be required.

10.0 Brand Manager – Lewis Thresh

Metric	Measurement
Design cost	Hours spent per individual researching and producing logo and design.
Review	
Approximately 83 hours (since the end of iteration 1) have gone into the research, design and development of the company's logos and user interfaces. This equated to approximately £1,038 (not including cost of assisting members).	
Deliverables	Number of logo design iterations complete. Number of GUI iterations
Review	
Applications Logos: Versions 4.1,4.2, 5 and 5.1 of both LE and TE logos are currently used by the company. Previous (now unused) versions include V1 to V3.1. *Total of 14 applications logos and been created.* *Company Logo: Currently used - Version 2.3.1. Total of 6 company logos have been created.* *GUI iterations: 3 versions of the TeachEasy GUI were created, of which Version TE_GUI_3 is used.* *Only 1 version of the LE GUI was made*	
Appropriateness	How close do the initial specifications match the final product
Review	
Final GUIs are almost identical to their initial wireframes fulfilling all specifications. Minor differences caused by development practicality.	
Defects	Number of elements that do not meet design specification
Review	
There are no elements that do not meet our design specification. The initial wireframes were copied almost exactly.	