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Project Management Report

Group – 3 Mathematics and English for Grade 3
Providing Online Materials for Teachers in Pakistan.

Course Instructor - Dr. Peter Carr
Date - 31st July 2020

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1. Executive Summary

This work was done by Group-3 from BE605 -Project Management during Spring -2020 term at University of Waterloo under guidance of professor Dr Peter Carr, and having a continuous collaboration with the Pakistan Idara-e-Taleem-o-Aagahi (ITA), whose final goal is to provide online teaching resources according to Pakistan Curriculum for Teachers without Frontiers(TWF) Program which helps in promoting development and continuous learning to teaches with by utilizing latest technology.

The main aim for Group-3 was to provide resources for Grade-3 in English and Mathematics subjects that satisfies the course requirements and matches the curriculum by providing highly engaging material and helps teachers in motivate to achieve a impactful learning outcomes for students, therefore the all online materials are inclined with the Student Learning Outcomes (SLOs) of Pakistan's National Curriculum. Keeping in mind, Group-3 members have been divided into designated roles and responsibilities and searched for the learning resource types like worksheets, activities, video, tutorials, textual documents, presentations & quizzes for various units of the subjects to achieve an ultimate goal of providing resourceful, engaging, efficient material to the TWS.

Proper project plan, implementation of overall project using Agile methodology, defining deadlines for each sprint, having continuous communication and receiving feedback by the project stakeholders helped the project to stay on track and collecting maximum resources as per client requirements. A weekly project status report was submitted to the professor every week to keep the stakeholders updated about the project progress during the week and what were the team plans to perform during the next sprint. Group-3 used to have a WebEx meeting with the Professor every week on Tuesday evenings to discuss the project progress. On Bi-weekly basis, one member from Group-3 used to represent the team in the WebEx meeting with Fida, Professor Peter Carr and the representatives from the other teams. Communication between the team members used to happen virtually several times during a week and for specific agendas and to discuss the issues along with proper mitigation steps to be followed.

Group-3 have provided all the resource links in a shared excel sheet with the TWF team. Each sprint we used to work on 2 units one from English and one from Mathematics and used to have a through quality check before submitting them, as Group-3 have considered Agile methodology for this project we considered a round-robin Scrum Master role for each member of our team i.e. each member are supposed to wear hat as Scrum Master and make sure that each sprint goes smoothly by following all roles and responsibilities. As a Communication tool we used Jira platform for updating our task status. At the end of the project, Group-3 collected 1,311 online links of learning materials as specified by the SLOs, thus meeting the client's expectation from the project.

2. Introduction

Consistently positioned Canada's most innovative university, Waterloo is home to advanced research, mathematics, engineering, teaching in science and other fields. University of Waterloo embraces its connections to the world and encourages enterprising partnerships in learning, research, commercialization and brings ideas of brilliant minds together, inspiring innovations with real impact today and in the future. Masters students of the University of Waterloo 's project management courses under guidance of professor Dr Peter Carr, have a continuous collaboration with the Pakistan Idara-e-Taleem-o-Aagahi (ITA) or centre for education and consciousness Public Trust, an NGO which was established in 2000 as a citizens' response to multiple crises in education, it has expanded programs in service delivery, capacity building, research and advocacy across the country. The main aim of the project is to help teachers to indulge Tech-Enabled Educational ideas with the technology by providing online teaching materials and resources for teachers in alignment with the updated National Curriculum of Pakistan, to change the mind-set of the teachers by instilling passion for professional development and growth, consciously developing strong urge for owning the process of professional development as an inevitable need and to cultivate the culture of professional development for teachers which is accessible, contextually relevant, consistent and coherent.

Students are divided into teams and the main outcome of each team is to find resources that satisfies the course requirements and matches the curriculum by providing highly engaging material. All teams are expected to map the resources to the Pakistan National Curriculum's Student Learning Outcomes (SLOs), making sure that each SLO mentioned in the National Curriculum of Pakistan for the mentioned grade and subjects is covered by the content in the resource library. The resources provided shall be focused on students for continue to learn in a fun and creative environment through the interactive content in the form of videos, games, quizzes apart from that it is beneficial to teachers in enhancing their knowledge on a particular teaching material, continue building the Education Resource Library to assist teachers to prepare in a better way which would ensure effective delivery of the lecture content simultaneously satisfying the SLO requirements of the National Curriculum of Pakistan. Resources are provided for teachers on how to motivate or strive for impactful learning outcomes from students and inculcating how lectures can be strategically planned to keep in mind the strength & weakness of each student will be provided to make it easier for teachers. By changing all the full-length URLs into Tiny URLs to ensure that these have easily compatible access to mobile devices and tablets.

This report clearly states the detailed information about how we accomplish to source the online teaching material by Group -3 from BE-605 Project management in Spring 2020 for the grade 3 Mathematics and English subjects. We divided tasks/activities based on the allocation of work to the respective team members and we have worked our project by leveraging a gear towards agile

project development and used different project management tools in building a better shape to our project. Considering deadlines provided by sponsor/client/professor we defined the project plan along with the milestones to be achieved by reaching the end of each sprint and the project was successfully completed within the deadlines i.e. in 7 weeks. The further report explains about our project plan and how we have implemented the proposed project plan using agile collaborative tools and detailed interpretation of major findings of our project results and discussions and at the end of our report and have included all the relevant resources which are used in leading project.

3. Project Design

Our Project started from the outcome of a kickoff meeting held on 21st May 2020.Where we have gone ahead planning our project as follows; set our goal and scope, assessed resources, assigned roles and responsibilities to our team members, listed out major activities and milestones, decided on the project strategy for execution , Project evaluation and contingency plan.

3.1 Project Scope and Goal/objective:

Scope of our Project includes execution of TWF (Teachers Without Frontiers) Grade 3 English and Mathematics by providing online resources/e-learning resources (Videos, articles, games etc.) which shall be a continuous professional development program to empower teachers in Pakistan. An objective is to complete it on time without compromising the quality and Meeting the SLOS based on Pakistan's curriculum accurately. It is very crucial to define a proper scope and objective for the project, if not the project might deviate from reaching its goal due to improper definition of the scope. in this Scope.

The team members shall be allocated respective roles and responsibilities and would research, validate and update the e- learning sources to TWF library based on SLOS (Student learning outcomes) for curriculum of Grade 3 English and Mathematics Curriculum as outlined by the Pakistan National Curriculum.

3.2 Resource Assessment and Team Formation:

Based on the discussion with Professor Peter Carr or learn portal we have been given a good resource of information about the project, Pakistan National curriculum, expectations from TWF etc. based on the information given by the professor and the TWF client, following are the features of the resources collected;

- Resources could contain texts, interactive game applications, tutorials, worksheets and videos.

- Resources must be open source content with no need to gather copyrights permissions covering security com.
- Resources must be free to use with no cost for TWF.
- Resources should provide information that is understandable and useful for grade 3 students considering their background in education without compromising on quality.

YouTube and google search engine were the two main options for searching for online resources for Grade 3 students of Pakistan. Also, we decided to use following communication resources i.e. Zoom Call, WhatsApp, Outlook and Google drive for communication amongst the team members.

3.3 Major Activities and milestones of the project:

Our project schedule started with a kick off meeting on 21st May 2020. Our first mile stone was to make a project plan to be submitted on 2nd June 2020 for approval. once we receive the approval our R&D team, communication team, Quality team, change management team and risk assessment team shall work in collaboration with Project manager for matching every weeks SLO of grade 3 Math's and English. Our milestone for every week is to Map the online sources with respect to SLOs as per Pakistan National curriculum and submit weekly progress report every Monday. Every Monday we plan to meet client for our progress review and comments. Consequently, all the weeks shall be repetitive till completion of grade 3 math's and English syllabus in line with Pakistan National curriculum. Post which the final mile stone of our project is reviewing and submitting project report and video presentation on 31st July 2020.

As we followed an Agile Methodology for executing the Project, we have listed our activities based on the roles and responsibilities of the team members. Following are the list of activities along with the start and finish dates.

Please find the Project plan excel sheet from the below link:

https://docs.google.com/spreadsheets/d/1chajdmkp_rQXDL6JDP7NTeOUHe5IZalFmQwyoIdXp5U/edit?usp=sharing

3.4 Project Strategy:

We have decided to follow Agile methodology in implementing our Project.

Agile Project Management Software;

As we want to work on mixed agile methodologies by leveraging a gear towards agile project development, we choose **Atlassian Jira** + **Agile** as an Agile project management tool that

supports(Scrum ,Kanban and other methodologies) and this project management software comes with a comprehensive set of tools that help Scrum teams perform events with ease.

Key Roles and Responsibilities as a Scrum Team;

Sprint planning: The work to be performed (scope) during the current sprint is planned during this meeting by the entire team. This meeting is led by the scrum master/Project manager and is where the team decides on the sprint goal.

Sprint: A sprint is the actual time period when the scrum team works together to finish an increment. Two weeks is a pretty typical length for a sprint to deliver a valuable increment

Daily Scrum or Stand Up: This is a daily short meeting that happens at the same time. The goal of the daily scrum is for everyone on the team to be on the same page, aligned with the sprint goal

Sprint retrospective: The retrospective is where the team comes together to document and discuss what worked and what didn't work in a sprint. The idea is to create a place where the team can focus on what needs to be improved for the next time.

 Major Roles for Agile Project Success:

Product owner:

Focuses on understanding business, customer, and resource requirements, then prioritizing the work to be done by the complete team accordingly. Effective product owners:

- Build and manage the product backlog.
- Closely partner with the team to ensure everyone understands the work items in the product backlog.
- Give the team clear guidance on which features to deliver next.

Scrum Master/Project manager:

The Scrum master coach teams and product owners on the scrum process and look for ways to fine-tune their practice in project management, we are following **Rotating scrum master methodology** (members of a team rotate scrum master responsibilities primarily amongst each other for every sprint). Scrum masters often perform some or all of the following activities:

- Stand-ups - Facilitate daily stand-ups (or the daily scrum) as needed.
- Iteration/sprint planning meetings – Aim in estimation and sub task creation.
- Sprint reviews – Participate in the meeting and capture feedback.
- Retrospectives – Note areas for improvement and action items for future sprints.

- Board administration – Work as the administrator of the Scrum board on Jira platform. Ensure that cards are up to date and the scrum tool.

Scrum Team:

Consists of R&D team, Communication management team, Quality team, Change and risk assessment team and operations team. The scrum team drives the plan for each sprint. They forecast how much work they believe they can complete over the iteration. Team members have different skill sets, and cross-train each other so no one person becomes a bottleneck in the delivery of work. All members of the team help one another to ensure a successful sprint completion.

3.5 Project Evaluation:

R&D team would find all the resources from various platforms relevant to grade 3 English and Mathematics subjects of Pakistan National curriculum. All such sources shall be submitted to quality team and quality management team is expected to analyses the relationship between the project outcomes, impacts, goals and activities with respect to the SLOS of grade 3 English and mathematics of Pakistan National curriculum. Quality team ensures project effectiveness and efficiency by cross checking progress on each objective and completion of activities within a given time frame. They analyses different components or indicators that characterize the project's progress towards the achievement of project goal and take Project manager/Scrum Master's approval. With Project manager's approval, the Operation team shall update all the approved links. Meanwhile the change management team and risk assessment team shall ensure changes and risks are taken care while uploading the links. Scrum Master and Communications team prepares the weekly progress report and submit to the client and take the inputs from the Client and Professor. Finally, TA/ Professor/Client would approve the final work. All issues, possible problems and inconsistencies would be discussed and resolved accordingly.

Project Contingency Plan:

Any Project during the project cycle may have to see changes consistently. To counter these changes to our TWS Grade 3 English and Mathematics project we hereby propose a change request plan. However, the main aim is to regularize the dynamics of the project without compromising on quality and strive for meeting the project deadlines as stipulated.

Mainly change management plan shall register the necessary changes to the project and tracks the impacts of such changes for effectively managing the project changes from project start to finish.

Change management plan shall be planned in advance, forecasting the changes that would happen during the project cycle. The main audience of the project would not only cover project manager and project team but also the project sponsor and other stake holders.

The change management process includes validation of the changes requested, tracking the submission, coordination, categorization and approval of release of project changes.

In case of Risks:

In General, if you observe any project irrespective of size and scope will meet certain challenges while the work is in progress. A risk is any uncertain condition that might affect your project. In my opinion not all risks are negative. Some of the situations/events (such as finding an easier way to do an activity) can help your project. When this happens, we call it an opportunity; but it's still handled just like a risk. There are no guarantees on any project. Even the simplest activity can turn into unexpected problems. Anything that might occur to change the outcome of a project activity, we call that a risk. A risk is something that may or may not happen. But if it does, then it will force you to change the way you and your team work on the project.

- The main motto of the risk management plan is to provide the project manager and the group that you are working with (team) and means to identify, control, and response to such risks.

- We identified certain risks to the efficient handling of our project. These are the risks those are in the process of being handled. As project is interesting and challenging, we are expecting the following risks and anticipate more risks to cross our path.

- As a team we are assigned to do Grade3 English and Mathematics project, the deadline finalized for the project might coincide with the other academic progresses as the members in the team are all full-time students. Because of assignments of other subjects, and exams in between the semesters might hinder the teamwork ability to deliver the content on the promised deadline of project/milestone.

- While the project is in progress there might be a chance to one of our team members to get sick, this will be going to affect the project plan and the work that is assigned to the member of team this may leads to change of project plan.

- Since we are dealing with project and deliverables will find users among the teachers in Pakistan, the compatibility and integrity of the information gathered to those of the clients is a risk factor. Since all the sources are gathered in English language, language barrier could be a risk that would prevent the full impact of our deliveries.

- While gathering resources for the SLO's (Student learning outcomes), the need of videos that is related to the concepts and games that promote e-learning will be high. But the risk associated with this is also be very high. By collecting all these resources from copyrighted websites there might me chance of copyright infringement.

- The links that we are going to gather and compile for the clients in the final report has to have high accuracy and integrity, any inactive links/broken links and unauthorized sourced links will lead to wrong information.

- Any unforeseen situation of individual team members may affect the milestone achievements. This must be dealt with morally without impacting the team performance.

4. Implementation of Project Plan

The implementation of the project plan is the most important yet crucial part in the journey to successfully complete the project. The tradeoff between the amount of work done in a given time versus the client's feedback incorporation, along with scheduling of tasks were very important aspects that lead us to follow an agile methodology of project planning and scheduling. In our agile planning, 7 sprints of 1 week each were planned which included iterations of resource gathering, research of niche resources, quality assurance and delivery. The resource library was created by following the Student Learning Outcomes (SLOs) presented to us by the client, and was delivered in the form of spreadsheets, format of which was agreed upon at the beginning of the project. The resources gathered were documents, videos, interactive animation pages, worksheets etc. Throughout the length of our project execution, our main motivation was to find resources which would perfectly fit the intellectual level of Grade 3 students and would entice creative thinking in the minds of students and the teachers. Some key aspects of the process followed in the project plan is as follows:

1) Searching and recording resources which perfectly match the SLOs.
2) Continuously quality checking the resources gathered.
3) Keeping the team up to date with respective individual progress in routine stand up meets.
4) Attending meetings with professor and client and ensuring any feedback given is incorporated.
5) Routinely assessing project status for any present or future risk.

To profoundly and efficiently complete the project, we followed POD structure in agile fashion. The two pods/sub-team were formed as such that the two sub-teams can work independently and have no conflicting concerns. In each of the pod, we had one group coordinating member each of

research & development, quality assurance, communication management, risk analysis management. The project manager on the other hand coordinated amongst the two pods and tracked the progress. One of the pod worked on English Grade 3 SLOs whereas the other pod worked on Mathematics Grade 3 SLOs.

Further to reap the benefits of agile methodology, the team used an online task tracking platform, Jira. Jira was used to create and assign tasks within each sprint. The platform was also used by the QA team to report issues and to assign issues to concerned team members. The project manager used Jira to keep track and be vigilant about the progress of the tasks. Also, the Jira tool was helpful for the change and risk management team to quickly analyze the state of the project by accessing reports generated by the Jira tool.

4.1 Task Management

The initial stage was for planning the work and preparing the project plan, which approach we are going to use for implementation of the project. We have used the Agile approach for implementation of the project in which the entire project is divided into sprints and the duration of each sprint is around 7 days. Then we have divided the entire syllabus of English and Mathematics of Grade-3 into 16 units. In the start of every sprint we had a kick-off in which agenda of the week was discussed. Then the Research and Development Team would search the relevant SLOs. To verify that SLOs are in line with the curriculum Quality team would check them and verify them. Then, the Change and Risk Management Team would keep the check that all the tasks are done on time. The complete schedule of the project is shown in the table given below:

S.No.	Sprint	Task	Task Points	Members Involved
1	1	Introduction Meeting	2	All team Members
2		Kick off meeting for discussion of project plan	1	All team Members
3		Collecting Bios of all the team Members	1	All team Members

4		Meetings among sub-groups (each functional pillar)	2	All team Members
5		Project Plan submission to Project Manager	3	All team Members
6		Proof Reading of Report	1	All team Members
7		Submission of Project Plan	1	All team Members
8		Approval of Project Plan report	1	All team Members
9		Working on feedback	1	Change and Risk Management Team
10	2	Understanding the curriculum of Grade-3 English and Mathematics	1	R & D Team
11		Making two subgroups- having each member of all the functional pillars and assigning one subject to each subgroup	1	All team Members
12		Kick off meeting - For discussing Agenda of the week	1	Meeting Conducted by- Communication Team
13		Identifying the SLOs	2	R & D Team
14		Quality check of SLOs	1	Quality Team

15		Make and submit Weekly Report	1	Project Manager
16	3	Kick off meeting - For discussing Agenda of the week	1	Meeting Conducted by- Communication Team
17		Identifying the SLOs	2	R & D Team
18		Meeting with client (Fido)	1	Communication Team
19		Quality check of SLOs	1	Quality Team
20		Check whether work is completed on time and there is no backlog	1	Change and Risk Management Team
21		Make and submit Weekly Report	1	Project Manager
22	4	Kick off meeting - For discussion Agenda of the week	1	Meeting Conducted by- Communication Team
23		Meeting to discuss the feedback given by client	1	Meeting Conducted by- Communication Team
24		Identifying the SLOs	2	R & D Team
25		Quality check of SLOs	1	Quality Team
26		Check whether work is completed on time and there is no backlog	1	Change and Risk Management Team

27		Make and submit Weekly Report	1	Project Manager
28	5	Kick off meeting - For discussion Agenda of the week	1	Meeting Conducted by- Communication Team
29		Introspection Meeting- To discuss "what went well" and "What could have been done better"	1	Meeting Conducted by- Communication Team
30		Identifying the SLOs	2	R & D Team
31		Quality check of SLOs	1	Quality Team
32		Check whether work is completed on time and there is no backlog	1	Change and Risk Management Team
33		Make and submit Weekly Report	1	Project Manager
34	6	Kick off meeting - For discussing Agenda of the week	1	Meeting Conducted by- Communication Team
35		Meeting with client to update them the progress and take feedback from them	1	Communication Team
36		Identifying the SLOs	2	R & D Team
37		Quality check of SLOs	1	Quality Team

38		Check whether work is completed on time and there is no backlog	1	Change and Risk Management Team
39		Make and submit Weekly Report	1	Project Manager
40	7	Kick off meeting - For discussion Agenda of the week	1	Meeting Conducted by-Communication Team
41		Introspection Meeting- To discuss "what went well" and "What could have been done better"	1	Meeting Conducted by-Communication Team
42		Identifying the SLOs	1	R & D Team
43		Meeting for reviewing the reference report	1	All team Members
44		Quality check of SLOs	1	Quality Team
45		Check whether work is completed on time and there is no backlog	1	Change and Risk Management Team
46		Make and submit Weekly Report	1	Project Manager
47	8	Kick off meeting - For discussion Agenda of the week	1	Meeting Conducted by-Communication Team

48		Meeting for diving the work of report in subgroups	1	All team Members
49		Meetings among sub-groups of each functional pillars for Final report preparation	1	All team Members
50		Report Preparation	2	All team Members
51		Check whether work is completed on time and there is no backlog	1	Change and Risk Management Team
52		Make and submit Weekly Report	1	Project Manager
53	9	Kick off meeting - For discussion Agenda of the week	1	Meeting Conducted by-Communication Team
54		Preparation of Presentation	2	All team Members
55		Combining the final report	1	Project Manager
56		Proof Reading of Report	1	All team Members
57		Prepare Video presentation	1	All team Members
58		Submission of Final Report and Presentation	1	All team Members

4.2 Resource Gathering

The two pods worked in coordination to efficiently gather resources for the library. The resources gathered at the end of 7th sprint constituted web URLs which were majorly documents/articles, videos, interactive animations/games & worksheets/quizzes. Each member of the 9-member team contributed their bit in the process of resource gathering along with aptly handling their respective department's work.

The pod-team discussed the SLOs at the beginning of the sprint, wherein a proper and a common understanding of the resources to be gathered in that sprint were formulated. Based on the established understanding of the SLOs, resources were gathered which accurately fit the established criterion. The same was done so as to gather only relevant resources which would hugely benefit the students accessing the library. Further, the gathered resources were made sure to not have much advertisements and irrelevant content on the page.

In order to gain even more confidence in the team's deliverables, the Quality Assurance team inspected each URL against the already formulated criteria.

Few of the aspects that were kept in mind while gathering resources were:
1) Resources shall be accessible without any special hardware or software need.
2) Resources shall be free to use and also should be available in the region of Pakistan.
3) The resource shall significantly cover the SLO.
4) The collected URLs, shall completely cover the SLOs
5) The team shall work so diligently that the QA team shall not get a chance to report any issue.

4.3 Resource Organization

The two pods within the team used different spreadsheets to track and record their work. These spreadsheets were only meant to be used internally and the newly added data was taken to the main spreadsheet only after the QA team gave clearance. The team iteratively in every sprint, gathered and updated URLs in the internal spreadsheet and the respective QA analyzed the newly added resources. For any resource in which the QA team found issues with, was flagged within the internal spreadsheet and was reported to the concerned team member on Jira. Once all issues were resolved and tracked on Jira, the project manager submitted the newly added resources to the main spreadsheet, shared with the professor and the client.

For every sprint, the change and risk management team analyzed the state of the project at the end of the sprint to check for any concerns pertaining to estimation and timely completion of the

project. With their analysis, a weekly status report was formed which included the status of the project, wherein green, orange, red colors represented "on track", "a bit off track", "a lot off track". The weekly status report was submitted to the professor after each sprint.

The communication team also conducted introspection sessions in sprint 3 & 4, wherein aspects to improve resource organization along with many other things were discussed. As a result of the introspection session, from sprint 4 the team stored every version of the internal spreadsheet, main spreadsheets and weekly reports on one drive provided by University of Waterloo. The same was done to have a backup of the previous version of each file, in case of any mishappening.

4.4 Challenges Faced & Scope of Improvement

The team followed an agile methodology of project planning, which boosted confidence within the team to accept and reflect fast on changes. The team at the very beginning faced issues with understanding of English Grade 3 SLOs as they mentioned "themes" instead of "topics". The challenge was resolved after getting feedback from the professor, with that the team progressed smoothly on that concern.

Another issue faced by the team was of spending too much time on group meetings. This one was a major challenge as the team was spending nearly 2 hours routinely on stand-up calls. The team brainstormed for a solution for the same. According to the solution, now each person shall speak about, "what I did previously, what am I going to do next and do I have any impediments blocking my work". With that, the stand-up meeting now included speaking of only the above-mentioned lines in view of each team member. In case of a detailed discussion required, the same was taken up after the standup meeting amongst the concerned team members only. This solution saved us a lot of time the meetings could now get over in under 20 minutes.

Further, the moral of the team was never down regardless of any issues, as each team member was equally motivated to bring about a good impact on the lives of students in Pakistan, by their work.

5. Project Results

This section comprises the results which were achieved while performing the project task. The project was distributed by dividing the tasks weekly for both Mathematics and English. Tasks were given in the form of units derived from SLOs for both the subjects and resources were mapped by the end of every week. Hence the results compared are in the form weekly progress as well as types of resources used.

We tried to include numerous types of resources making the overall subject a blend of productive learning. The types of resources used for English and Math comprises Games, Study-material, Worksheets, videos, quiz, activity, web application, assignments, cue cards, interactive media, charts, flashcards, presentations and puzzles.

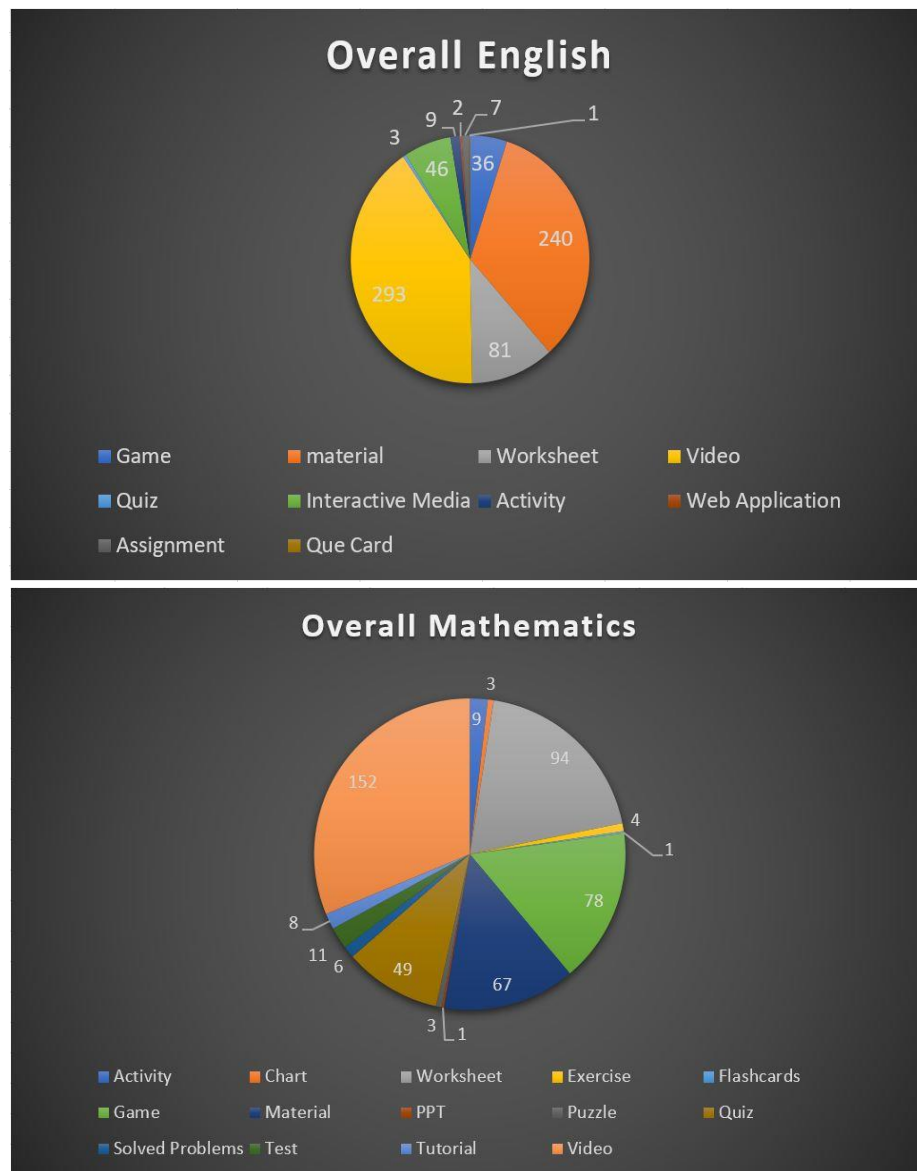Overall, the types of links gathered are shown below for both subjects.

Figure 1 - Type of resources

The units distributed for mathematics were 1 unit per week whereas for English, as we had a greater number of units, 1.5 units were targeted per week for the first 4 weeks and then from week 5 one

unit per week was targeted. Below are the results for week 1, in which Unit 1: Numbers was covered in Mathematics which had a total of 86 links and for English Unit 1: Ethics and Value was fully covered.
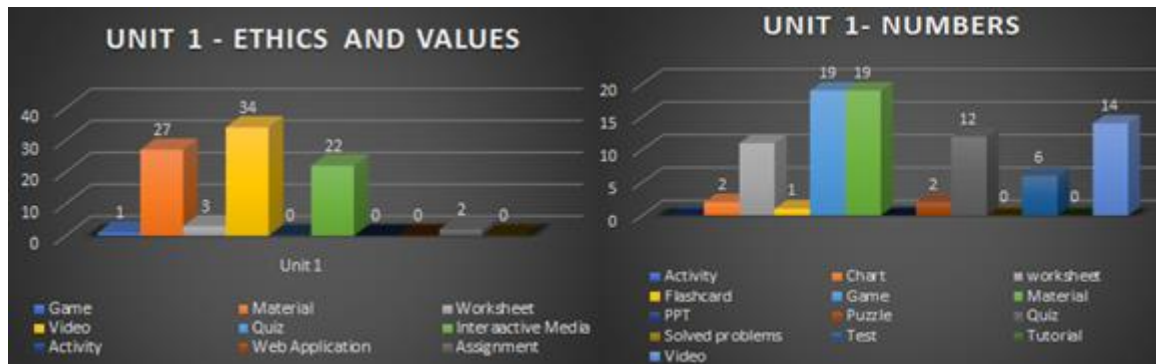
Figure 2: Unit 1 for English and Mathematics

Unit 2: Peaceful Coexistence / Peace Education was covered partially giving a total of 89 links, making a total of 175 links covered for the week. For week 2, in Mathematics Unit 2: Number Operations was completed and 59 resources were mapped and for English, Unit 2: Peaceful Coexistence / Peace Education, which was partially left in the previous week.
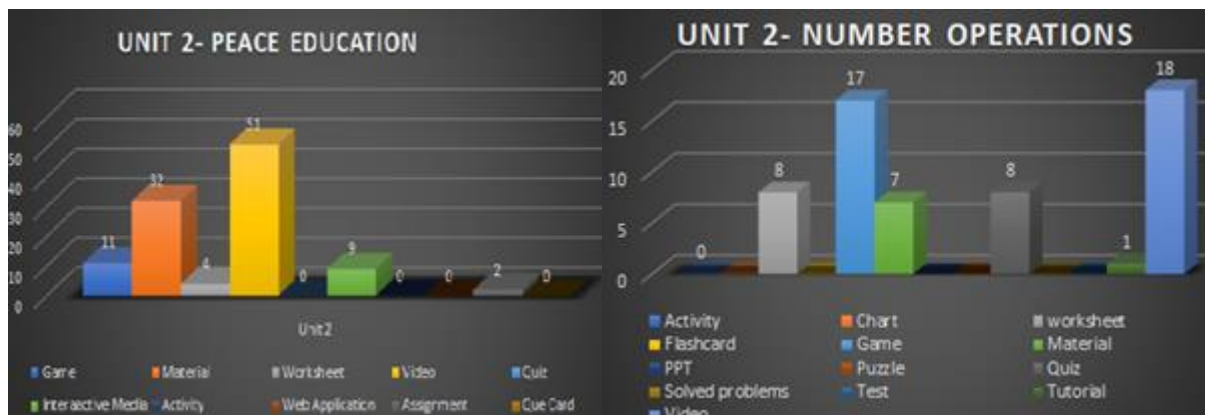
Figure 3: Unit 2 for English and Mathematics

Unit 3: Self, People and Places fully were completed and 109 resources were mapped accordingly. The results for week 2 can be seen below.
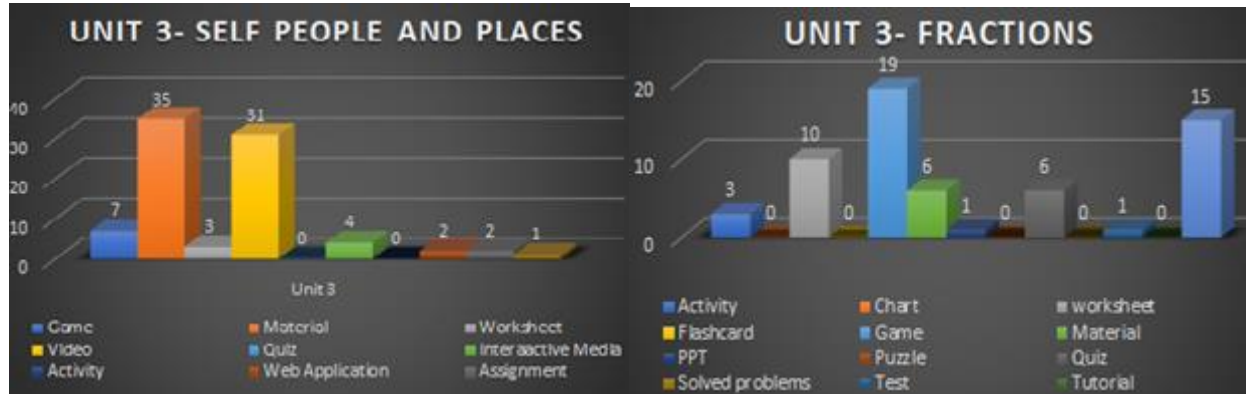
Figure 4: Unit 3 for English and Mathematics

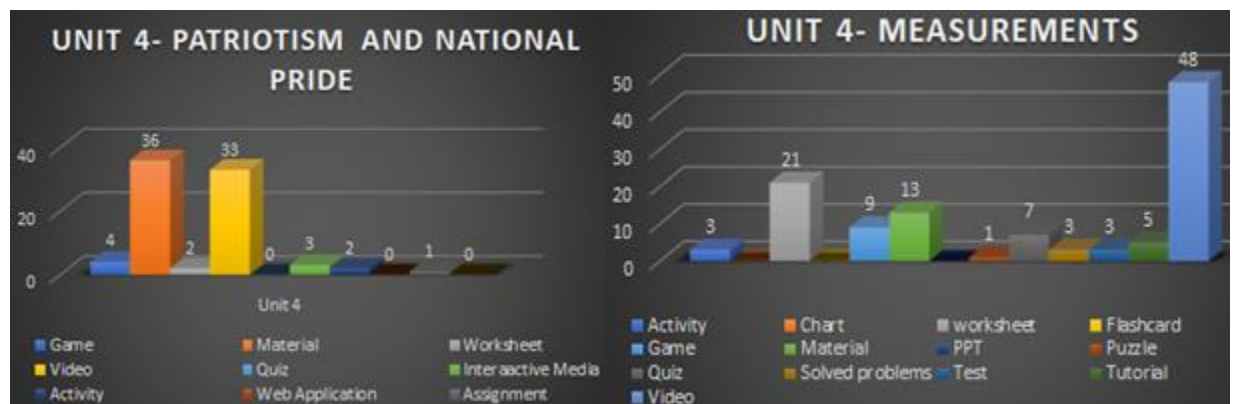In week 3, Unit 3: Fractions was covered in Mathematics and 63 links were updated whereas in English,

Figure 5: Unit 4 for English and Mathematics

Unit 4: Patriotism / National Pride was fully covered and Unit 5: Nature was covered half, giving us a total of 85 resources. The results can be seen below.

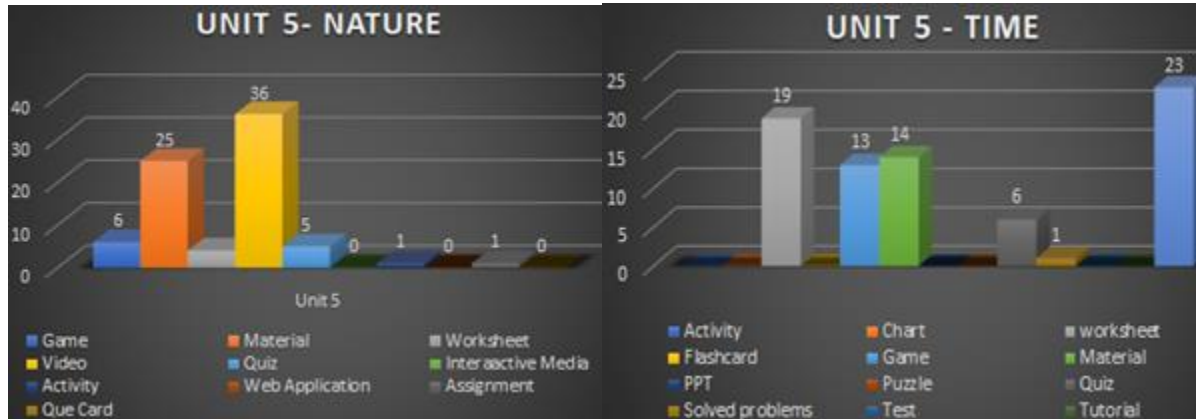In week 4, for Mathematics Unit 4: Measurements was completed by mapping 111 resources and for English, Unit 5: Nature, second half of unit which was left, and

Figure 6: Unit 5 for English and Mathematics

Unit 6: Gender Equality was covered by mapping 81 resources in all. The results in statistical manner can be seen below. For week 5, we moved forward by completing Unit 5: Time in Mathematics and updated a total of 77 links.

Figure 7: Unit 6 for English and Mathematics

and Unit 7: Festivals and Cultural Events in English was completed and a total of 78 resources were mapped. The results graph for both the subjects can be seen below. For week 6, Unit 6: Geometry was covered, and 49 resources were mapped accordingly in Mathematics and
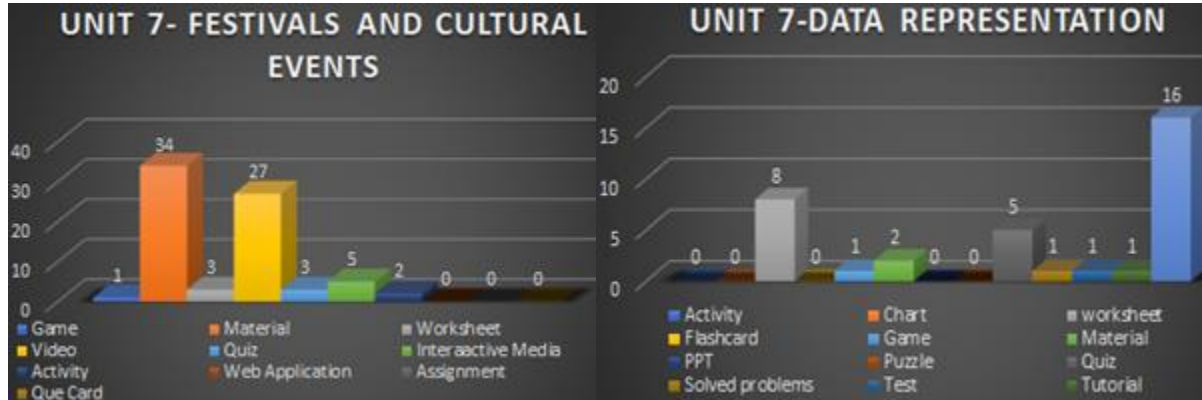
Figure 8: Unit 7 for English and Mathematics

Unit 8: Role Models Male /Female (Past and Present) was covered and 75 resources were mapped accordingly for English. The results for the same can be seen in the graph below. For week 7, Unit 7: Data Representation was covered, and 39 resources were mapped accordingly for Mathematics and Unit 9: Use of Dictionary was covered in English and 61 resources were mapped accordingly. The results of week 7 can be seen below.
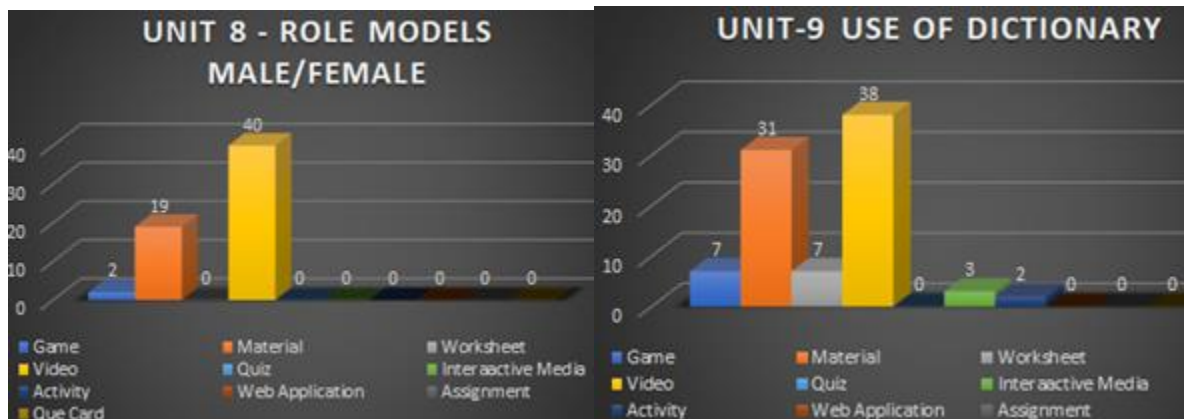

Figure 9: Unit 8 & 9 for English

For week 8, we were left with only units from English and all the units for Mathematics were completed before. Hence for this week, Unit 10, Worksheet for reinforcement was completed and a total of 88 links were updated. The results can be seen below for the same.
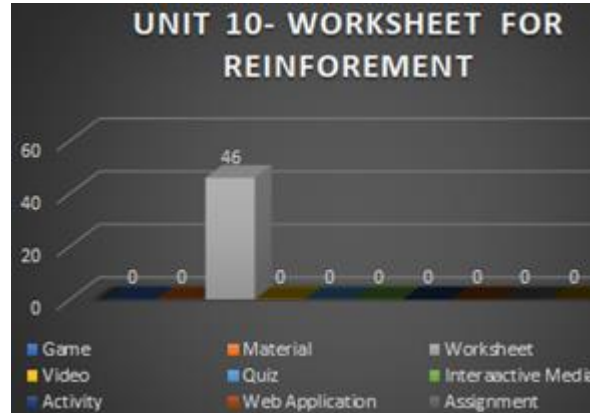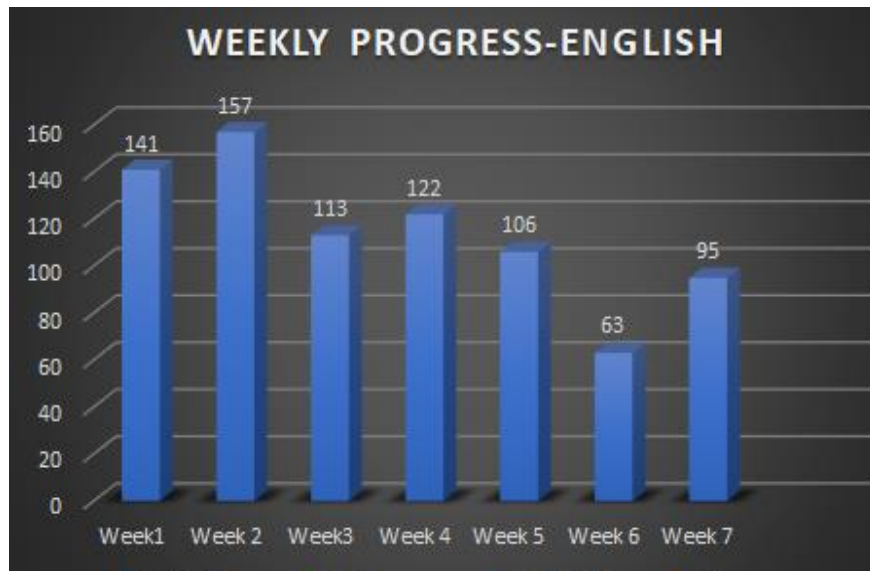
Figure 10: Unit 10 for English.

The overall weekly status can be seen in the graph below for both the subjects and the total number of links mapped weekly can be seen below.
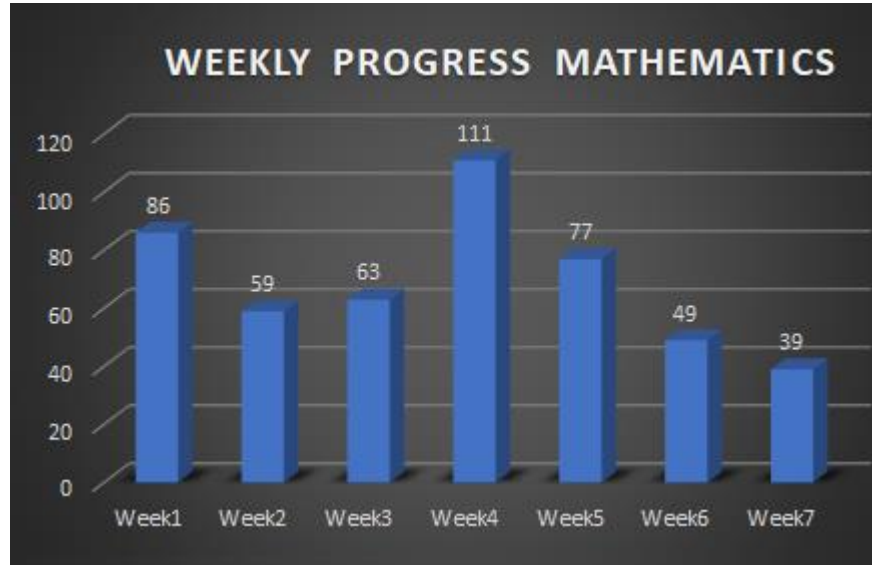
Figure 11: Weekly progress for English and Mathematics

6. Conclusion & Recommendations

The project for the non-profit organization of Pakistan, Teachers Without frontiers in association with the University of Waterloo, has been successfully completed. All sections of student learning outcomes, subject areas of English and mathematics for grade III students were completed following the National Curriculum of Pakistan education system. A variety of study material including videos, interactive games, documents, images etc. were collected, which we are hopeful would be resourceful to the teachers and students of Pakistan. We sincerely wish that our work brings upon an impact for the greater good of the students, teachers and whosoever makes use of the resource library.

The team really found the resource library as perfect for making the students have an overall idea of the unit and making it more interesting. The material covers and spans across the entire set syllabus of the students, which not only shall help students improve and build knowledge but also, at the same time help reduce stress and boredom from the conventional ways of teaching in school.

The building of resource library has been continuing since years, hence the team really felt that any feedback from the students and the teachers directly, would have been helpful in plethora of ways such as, knowing which type of resource has the best positive impact on the end user, what are the things that are working well and which are the things which aren't working so well for the end users. The above-mentioned possibilities would have enabled the team to be better motivated and guided towards finding the right and the most impactful resource for our budding students and

respected teachers. The feedback system could have really enabled us as a team to be more efficient and performant in bringing about a product with least errors and maximum impact.

The team followed each and every instruction we received at the beginning of the project and accentuated the routine feedback given by Prof. Peter Carr. Based on Professor's feedback and suggestions we updated our project resources. He was supportive and acknowledged the routine status that we provided. With the constant involvement and feedback and reflection of utter care from the Professor, the team stayed motivated and enthusiastic to complete the project in time and successfully.

We have collected all the materials required for Grade III students and teachers in their curriculum. Our team has provided the basic information to the current curriculum that will be helpful to all the students and teachers. We also supplied games, interactive session such as quizzes and assessments after each sub-units s this way of inculcating this kind of resources would help students to engage more and also do not feel the method of teaching to be monotonous i.e., In the process of collecting the resources our team felt the given SLO's were accurate and precise but we could provide content out of by inculcating some of the videos of current trends and interesting topics . By this methodology of online learning students might Initially take time to adapt to the new environment but later on they would try creating and reading on their own and making themselves towards their goals and ambitions would be a cake walk for them as they are not being dependent in earlier stages of their life. To be clearer, this made Pakistan 's students globally ahead because of their educational methods and also to increase their skills along with the growing technology.

With the world under global pandemic and the classes being held offline, the team faced hurdles in the beginning in ways to efficiently connect with each other. The team certainly believes in team-bonding and we believe our experience working in a team could have been better had we been given a week to just bond with each other. The recommendation here is highly debatable but worth mentioning. Further, the team really felt that the only reason a found resource was not good or not worthy enough to be in the resource library was because of the dearth of great resources available for the corresponding SLO. Given the team was a lot involved and motivated with the project and the idea to bring about a change, the team members really wanted to go a step ahead and make their own resources just to be better able to justify a SLO. However, a proper tooling and framework regarding the same was required, for the made-up resources to be converted to a publicly accessible resource. Hence the team recommends the organizers to set up a methodology or a framework, using which the team members could write up and make available their own resource which would better justify the SLOs.

The initiative here is very novel, hence the team feels the need for these resources to be made available to everyone in the world. Even though the website is public, the awareness of the existence of such novelty shall be spread with even more vigor than before, so that the benefits can be reaped by people across the globe. Further, in our motive to spread the benefits of the collected resources to every soul, we recommend the project to be expanded to accommodate the needs of the especially abled. Herein, we recommend compulsory inclusion of audio and video links, which our team throughout though followed.

To end with, we have high hopes that the upcoming teams would work upon and contribute to the novel idea to create e-learning resources and eventually expand it for the use of people of all ages and cultures.

The overall insights of the English and Mathematics are as in terms of resources collection is shown in the table in Appendix

7.Appendix

Please find the Appendix excel sheet from the below link:

https://docs.google.com/spreadsheets/d/1IT8p9pn-pI57KGcLpKKHBsMc6HySHReFN5KBfC8Ok6M/edit?usp=sharing