



ASTI LEAP CHALLENGE REPORT 2019



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Our Heartfelt Thanks!

*Kementerian Pendidikan Malaysia
Jabatan Pendidikan Negeri Kedah
Jabatan Pendidikan Negeri Pulau Pinang
Jabatan Pendidikan Negeri Johor
Jabatan Pendidikan Negeri Sarawak
Jabatan Pendidikan Negeri Sembilan
Jabatan Pendidikan Negeri Selangor
Pejabat Pendidikan Daerah Kluang*

Sponsor

YB Dr. Maszlee bin Malik, former Minister of Education

And To all Mentors, Volunteers and ASTI Leap Challenge Committee 2019

Table of Content

Executive Summary

1.0 Introduction

- 1.1 Summary of ASTI Leap Challenge
- 1.2 Background of ASTI Leap Challenge 2018 (Phase II)
- 1.3 Objectives of ASTI Leap Challenge 2018 (Phase II)
- 1.4 Methodology / Mode of Implementation

2.0 School Level ASTI Leap Challenge (SL-ALC)

- 2.1 Introduction
- 2.2 Implementation of School Level ASTI Leap Challenge

3.0 Training and Development

- 3.1 Training Preparations and Progress
 - 3.1.1 ASTI Leap Challenge Manual
 - 3.1.2 Training of Trainers
- 3.2 ASTI Leap Challenge Training for Teachers

4.0 Public Relations / Media Coverage

5.0 Accounts Statement of ASTI Leap Challenge 2019

6.0 SWOT Analysis

- 6.1 Conclusion
- 6.2 Recommendations

7.0 Conclusion

Executive Summary

The second instalment of the ASTI Leap Challenge (ALC) pilot project continued this year. This year, 7 new schools from the Simpang Renggam district participated in ALC. Schools that were interested were requested to submit proposals to organise ASTI Leap Challenge at their school level. The theme for ASTI Leap Challenge school level was “Sustainable Development Goals 12: Responsible Consumption and Production”.

The 7 new schools were provided with 1-Day Train-the-Trainer training by the Association of Science, Technology and Innovation (ASTI). The teachers were trained to be trainers and also were guided on how to organize ALC at their respective schools. The trained teachers were then required to train their students based on 3 training modules that were provided to them which are; Creative Thinking, Critical Thinking and finally Design Thinking. A full project folder was also prepared and given to each new school with notes on the 3 training area and modules on how to run the programme.

Some schools that conducted ALC in their schools in 2018 also continued to conduct ALC in their schools for a second year. Most of the schools of 2018 in Johor were situated in the Pasir Gudang area could not run ALC this year because of prolonged school closure in their area due to 2 incidences of dangerous pollution in Pasir Gudang area.

After the 3 training are completed at their respective schools, the students were given a project to complete, whereby they have to find a problem in their area and come up with a solution to overcome them based on the theme given by ASTI.

The solutions was exhibited on a special ALC day at their respective school/location. Upon completion of ALC in their schools, the schools were required to submit a report to ASTI.

1.0 Introduction

1.1 Summary of ASTI and ASTI Leap Challenge

The Association of Science, Technology and Innovation (ASTI) is an association of educators, scientists, industry representatives and individuals who are committed in advancing the role of the scientific community in inspiring the youth of the nation to join and excel in the world of science. Association of Science, Technology and Innovation (ASTI) is a nongovernmental organization (NGO) working towards empowering young children through various projects such as Science Fair for Young Children (SFYC), Young Inventors Challenge (YIC), Creative and Critical Thinking Camp (CCTC), on the “Wings of Fire” series, Young Scientific Explorer (YSE), ASTI Progressive Learning and Understanding Science (A-PLUS) and collaboration project with other bodies.

ASTI Leap Challenge gives an introduction and experience to young people to the world of invention and innovation. Participating in this programme gives the students an opportunity to enhance their creative and critical thinking skills to be able to solve a complex problem which is expressed by ‘doing’. The programme also prepares and encourages the students to participate in various national and international competitions with various inventions ideas and self-confidence.

1.2 Background of ASTI Leap Challenge 2019

ASTI Leap Challenge, ALC, is a pilot project that ASTI initiated with Yayasan Hasanah as a funding partner in 2016. We believe this project, which was for band 4 - 5 secondary schools, have the potential to help students to achieve higher levels of learning and understanding. The aim of the project is to expose young people to the world of invention and innovation in a very hands-on manner.

ASTI Leap Challenge helps students with their creative thinking, critical thinking and problem solving skills. Schools from Penang & Kedah participated in the Northern region for this pilot project. Meanwhile schools from Johor state participated in Southern region in 2017.

As a continuation, for Phase II of the pilot in 2018, we focused on training the teachers and students to conduct their own School Level ASTI Leap Challenge (SL-ALC). Details of ALC Phase I and II is available in Report 2017 and Report 2018 respectively.

In 2019, schools that participated in ALC 2018 continued to conduct ALC in their schools. Besides that, ALC training for 7 new schools by invitation was also conducted by ASTI in Simpang Renggam Zone.

1.3 Objectives of ASTI Leap Challenge 2019

As continuation of ALC this year, we trained the teachers from the new schools to conduct their own School Level ASTI Leap Challenge (SL-ALC). Schools that conducted ALC in their schools last year also continued with ALC in their schools this year.

Project Objectives

- To give an introduction and experience to young people to the world of invention and innovation.
- By participating in this event the students will enhance their creative and critical thinking skills to be able to solve a complex problem which is expressed by 'doing'.
- Enhance problem solving skills among participants.
- Develop communication skills among participants.
- Encourage team work among participants.
- Develop "out of the box thinking" among participants.
- Develop 'hands-on' learning methods for the young people.

Besides that, the programme also prepares and encourages the students to participate in various national and international competitions with various inventive ideas with self-confidence.

Upon participating in ASTI Leap Challenge, the schools are to conduct the competition in their schools as an annual event which will involve more students. This way more students will benefit from the project. The schools should also continue to be able to participate in various national and international invention competitions.

After participating in ASTI Leap Challenge, the participants should also be able to:

- produce an original invention or solution and receive recognition for participating in the event.
- meet and network with other young people who share similar passion.
- develop creative and innovative thinking skills.
- develop teamwork dynamics to solve problems.
- use resources such as the internet, library and experts to hone their research skills.
- learn to document their invention project.
- enhance self-esteem and confidence.
- acquire public presentation and writing skills.

1.4 Methodology / Mode of Implementation

New participants of ALC this year were given the ALC Manual folder developed last year by the ALC Team and ASTI's volunteers as a guidance to organize the programme. Schools that participated in ALC 2018 and continued with ALC this year were advised to use the manual given to them last year. This ALC Manual folder serves as a handbook or guidebook for all the stakeholders.

The folder is a key tool for the organisers, teachers, students, parents, facilitators and judges. It helps all parties to understand the scope and nature of the project and the role of each stakeholder better. There are 10 areas covered by the folder. Details of which is explained in chapter 3.

Approval from Kementerian Pendidikan Malaysia and Jabatan Pendidikan Negeri were sought before ASTI started with ALC school level. As per Kementerian Pendidikan Malaysia's advice, ASTI requested for approval from Jabatan Pendidikan Negeri Pulau Pinang, Kedah, Johor, Sarawak, Selangor and Negeri Sembilan.

The ALC team then worked towards implementing the project in Penang, Kedah, Johor and Miri. Invitation letter was sent to all the 55 schools that participated and completed ALC 2018 to continue with ALC this year. Schools that were interested to conduct ASTI Leap Challenge 2019 sent reply form to ASTI confirming that the schools will conduct ALC this year.

ASTI also liaised with Jabatan Pendidikan Negeri Johor to assist ASTI in sending invitation letter to selected new schools in Simpang Renggam Zone to participate in ALC. The next step was to follow up with the new schools in submitting their reply forms. This method of approaching the schools has helped to reach out to the new schools in Simpang Renggam Zone. Schools that complete ASTI Leap Challenge that is to conduct 3 training covering the 3 modules and organise a competition were given certificates.

Report submission by schools was done after the completion of ALC school level.

2.0 ASTI Leap Challenge (ALC)

2.1 Introduction

ASTI Leap Challenge which is done at school level is a follow up of ASTI Leap Challenge 2018 pilot. The project which was meant for band 4 – 5 schools at initial stage received huge support from the funder, Jabatan Pendidikan Negeri Pulau Pinang, Kedah and Johor and continued to receive support from them and Jabatan Pendidikan Negeri Sarawak as well the following year.

ASTI felt that ASTI Leap Challenge done at the school level will create a better impact and more students would benefit from it. Thus, School Level ASTI Leap Challenge was introduced to more schools. This year with the support from YB Dr. Maszlee Bin Malik, former Minister of Education Malaysia and also Member of Parliament for Simpang Renggam who provided funding and also support from Jabatan Pendidikan Negeri Johor, secondary schools from Simpang Renggam Zone were invited for the 1 Day training organised by ASTI to conduct their own School Level ASTI Leap Challenge (SL-ALC) as an annual event which involves more students.

A manual was given to the teachers as a guidebook for teachers, students and parents with training slides, report template and modules.

2.2 Implementation of School Level ASTI Leap Challenge

Secondary schools from Simpang Renggam Zone attended the 1 day training by invitation. Four teachers from each invited schools were requested to attend the training that was organised by ASTI. Jabatan Pendidikan Negeri Johor had agreed to send invitation officially to the selected schools. The purpose of the training was to train 2 teachers as trainers and another 2 teachers as organisers. The teachers were guided to conduct 3 training and organise the ASTI Leap Challenge competition in their schools during the 1 Day training. A total of 7 schools attended the 1 day training held on 26th June 2019 at Pusat Kegiatan Guru (PKG) Bandar, Kluang (Johor).

Each school was given an ASTI Leap Challenge Manual folder during the training to guide the schools to organise School Level ASTI Leap Challenge.

Besides these new schools, some schools that participated in ALC 2018 have shown interest in conducting ALC 2019. All the teachers were informed of the theme for school level competition which was “Sustainable Development Goals 12: Responsible Consumption and Production”.

Schools were required to submit a proposal to do school level ALC. A sample proposal was sent as a guidance for the teachers and a template was also sent to help the teachers to do the proposal. The deadline for proposal submission for schools that participated last year was 14th June 2019 (Friday). Meanwhile deadline for the new schools from Simpang Renggam Zone was 28th July 2019 (Sunday). The process of school level ALC requires the schools to organise 3 trainings and 1 competition in

school. Teachers should cover the 3 modules namely Creative Thinking, Critical Thinking and Design & Innovative Thinking in the 3 trainings. And the school level competition should be held based on the theme given by ASTI. As the next step, the schools were sent school level ASTI Leap Challenge report template. The schools have to send a report using the template sent to them once they complete school level ASTI Leap Challenge. ASTI Leap Challenge certificates were sent to the schools that participated and completed ASTI Leap Challenge 2019. The certificates were mailed to the respective schools.

Schools that continued conducting ALC this year are shown in the table below:

No.	Name of School	State
1	SMK Ulu Tiram	Johor
2	SABK Madrasah Alattas Alarabiah Johor	Johor
3	SMK Taman Johor Jaya 1	Johor
4	SMK Bakong	Sarawak

Table 1: Schools participated in ALC 2019 from last year

The above schools participated in ALC 2018 and continued to conduct ALC in their schools this year.

The new schools selected for ASTI Leap Challenge only attended the 1 Day training by ASTI. These schools did not continue to organise ASTI Leap Challenge in their schools. Five out of the seven schools have mentioned that the schools were not able to continue with ASTI Leap Challenge in their respective schools due to time constraints and too many activities held in their schools. Meanwhile ASTI did not get any response from the other 2 schools despite trying to contact the teachers from the respective schools twice.

In total 4 schools completed ASTI Leap Challenge 2019 this year and 7 new schools attended the training organised by ASTI.

3.0 Training and Development

3.1 Training Preparations and Progress

3.1.1 ASTI Leap Challenge Manual

The ASTI Leap Challenge Manual is a key tool for the organisers, teachers, students, parents, facilitators and judges to help them implement the project effectively and efficiently. The manual/folder was prepared in 2018 by ASTI Team members and a group of professionals. The manual was distributed to the schools during the 1 Day Training organised by ASTI for the new schools from Simpang Renggam Zone. Meanwhile schools that conducted ALC last year continued using the manual given to them during the training last year. The content of the folder is as follows:

- A) Introduction: How to use the Folder
- B) The 3 modules – all 3 modules with explanation notes.
 - 1. Creative Thinking (Training Module) - training slides on Creative Thinking with some suggested activities to be done during the training.
 - 2. Critical Thinking (Training Module) – training slides on Critical Thinking with some suggested activities to be done during the training.
 - 3. Design and Innovative Thinking (Training Module) – training slides on Design and Innovative Thinking with some suggested activities to be done during the training.
- C) Organisers module – detailed dos and don't on how to be an organiser.
 - 1. Organiser's Manual – gives details on how to organise ASTI Leap Challenge.
 - 2. Teacher Advisor Manual – explains the roles and responsibilities of teachers in guiding participants of the programme.
 - 3. Students' Manual – helps students to develop their projects and provides the format for writing a report.
 - 4. Parents Guide – guides participants' parents to motivate their children to perform well in ASTI Leap Challenge.
 - 5. Facilitator's Manual – guideline for facilitators on how to effectively help teachers and students during school visits.
 - 6. Judges Manual – gives proper guidelines on how to judge ASTI Leap Challenge effectively.
 - 7. Trainer Manual – gives guideline for teachers on how to conduct the 3 trainings in school effectively.

We hope that the manual would be helpful for future members to organise school level ASTI Leap Challenge.

3.1.2 Training of Trainers

The Training of Trainers (TOT) was not held this year since ASTI retained the same ASTI Leap Challenge training team. Dr. Mohamed Yunus Yasin who is also a trainer for ASTI Leap Challenge led the ALC training team.

3.2 ASTI Leap Challenge Training for Teachers

ASTI Leap Challenge 1 Day Training for teachers was conducted as a one-day session. Only 1 training was conducted this year and it was held in Pusat Kegiatan Guru (PKG) Bandar, Kluang for Simpang Renggam Zone on 26th June 2019 by ASTI. The trainings as organiser and trainer were held separately but simultaneously for the teachers. The sessions were facilitated by the ASTI Team.

The training sessions were conducted by the trainers from ASTI Team. The training sessions and materials were prepared and planned by the ASTI Team. Four teachers from each school attended the training by invitation.

Below are the details of the training held in Simpang Renggam Zone:

No.	School Name
1	SMK Seri Machap
2	SMK Dato' Ibrahim Majid
3	SMK Dato' Hj. Hassan Yunos
4	SMK Seri Lalang
5	SMK Dato' Abdul Rahman Andak
6	SMK Simpang Renggam
7	SMK Layang Layang

Table 2: List of schools attended 1 Day Training in Simpang Renggam Zone



1 Day Training for ALC Simpang Renggam Zone

4.0 Public Relations / Media Coverage

Dr. Mohamed Yunus Yasin as the Project Director of ASTI Leap Challenge was interviewed by TraxxFm on 15th May 2019. Dr. Mohamed Yunus Yasin explained about ASTI Leap Challenge in the interview.

5.0 Accounts Statement of ASTI Leap Challenge 2019

The ASTI Leap Challenge (ALC) training in Simpang Renggam Zone was funded by YB Dr. Maszlee Bin Malik, former Minister of Education Malaysia (Member of Parliament for Simpang Renggam).

	Amount (RM)
INCOME	
Funding	5,000.00
TOTAL INCOME	5,000.00
Less: Expenditure	
Module Development and Licensing	1,700.00
Training of Trainers (1 Slot, Venue, Food, Materials)	0.00
Venue for Training (1 Day)	0.00
Meals for Training (1 Day)	210.00
Transportation Allowance for Schools	0.00
Insurance	0.00
Modules, Stationaries, Activity Kits	120.00
Trainers Fees *	400.00
Transportation for Trainer and Volunteers	306.10
Accommodation and Meals for Trainers and Volunteers	380.65
Visit to School by local Partners (1 visit)	0.00
Evaluation, Monitoring	0.00
Sponsorship for School Level ALC (In Kind-Prizes & Certificates)	700.00
Operational Cost	1,000.00
TOTAL EXPENDITURE	4,816.75
Excess of (Expenditure)/Income	183.25

* Discounted from RM4,000.00

6.0 SWOT Analysis

An internal SWOT analysis was conducted with the committee of ALC, below are the results.

Strength

- Good feedback from stakeholders.
- Very good support and encouragement from Jabatan Pendidikan Negeri Johor.

Weakness

- Could not get volunteers or local partner association to help with school visits.
- Schools in Simpang Renggam did not conduct the event.
- Pasir Gudang schools could not participate due to prolonged school closure.
- Training for new schools were conducted late in the year.

Opportunity

- ALC to be a yearly school programme.
- Gave opportunity to more students to participate by bringing ASTI Leap Challenge to schools.
- Introduced ASTI Leap Challenge to new schools in a new zone.

Threat

- Funding/sponsorship for next year.
- Partners to support ASTI Leap Challenge next year.

6.1 Conclusion

- Expanded ASTI Leap Challenge to a new zone in Johor this year.
- There are schools that are still interested in conducting ASTI Leap Challenge in their schools.

6.2 Recommendations

- Strongly encouraged to explore more funding to expand ASTI Leap Challenge nationwide next year.
- Get more local partners to contribute in expanding ASTI Leap Challenge to more states next year and for more support for the programme.
- Conduct training early for new schools next year.
- To make sure schools organise school level ASTI Leap Challenge within the time period stated.
- Encourage to invite only in-charge teachers for ASTI Leap Challenge training.
- Frequent follow up with schools.
- Maintain good relationship with Jabatan Pendidikan Negeri to ensure success of the programme.

7.0 Conclusion

Upon completing ASTI Leap Challenge phase 1 and 2, ASTI continued with ASTI Leap Challenge 2019. Just like in 2018, ASTI Leap Challenge 2019 was held at school level. The schools are continuing to conduct ASTI Leap Challenge in their schools as an annual event which involves more students where more students will benefit from the project. The schools should be able to participate in various national and international invention competitions after doing ASTI Leap Challenge in their schools.

Some ASTI Leap Challenge Pictures



SABK Madrasah Alattas Alarabiah Johor



SMK Bakong



SMK Taman Johor Jaya 1



SMK Ulu Tiram



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