ASTI Feynman Challenge

REPORT 2021

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ASTI Feynman Challenge (AFC) 2021 Report

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CONTENT

OUR HEARTFELT THANKS!

Ministry of Education (MOE), Malaysia

Megatech College

Y.B. Tuan Ganabatirau A/L Veraman

Headmasters/Headmistress

Teachers

Parents

Students

And

To all the Judges

EXECUTIVE SUMMARY

Association of Science, Technology and Innovation (ASTI), a non-governmental organization (NGO) first designed the project called ASTI Feynman Challenge (AFC), during the COVID-19 Lockdown in 2020. This project is a team based on-line competition which is open to all communities which can be completed fully from home. With a minimum of 2 persons per team, the project requires the participants to explain a scientific principle of their choice using a simple teaching tool or method which they have invented. The tool they invent can use simple day-to-day objects which can be found at home. The scientific principle must be explained and recorded in a 5 minutes long video and must be upload on YouTube. The learning method used for this project is the Feynman Technique.

The challenge were divided into 3 categories, based on age level. The first, second and third place winner for each category were given prizes. There are also 3 special inclusivity awards for teams which have shown special capabilities or managed to overcome many hurdles complete their work.

Once the funding was secured the poster for this challenge was developed in both English and Bahasa Melayu. ASTI Feynman Challenge 2021 was fully funded by Megatech College.

ASTI also established the Terms and Conditions and developed 7 Modules as guidelines for the participants. The participants can refer them for the competitions rules and regulations, an introduction to the Feynman Technique, steps to upload video and many more.

ASTI also created a webpage containing all the information regarding the AFC. The poster was promoted and published at ASTI's webpage starting 15 March 2021 and via our various networks. At first, the participants' registration deadline was set at 15 April 2021. The responses we received were overwhelming. So upon many request, ASTI decided to extend the registration deadline to 30 July 2021. A total of 660 teams registered.

The deadline for video submissions was 30 July 2021. A total of 322 videos featuring various scientific principles and concepts were received. A panel of 94 judges evaluated and reviewed the videos to determine the winners.

For video marking, the judges followed the Rubric developed by the AFC judging panel. The judging panel consists of seven experience judges. Each judge were given approximately two weeks to complete the marking of the videos. The Inclusivity Award winners and the AFC winners for each category were discussed and finalized through Google Meet by the AFC Judging panel. On 18 August 2021, the winners were announced.

ASTI performed a survey of all participants using a google form link to obtain their opinions in order to better improve the project in the future. There are thirteen questions, with graphs illustrating the answers.

The response was overwhelmingly positive, with the project being promoted in five countries. As a result, we believe that there were significant benefits during the COVID-19 Lockdown, where families can work together to create a meaningful learning experience. Many of the teams who participated were family based teams.

1.0 INTRODUCTION

ASTI is a not-for-profit, non-governmental organization (NGO) with the objectives of empowering young children through various science-based and, skills-development projects such as Science Fair for Young Children (SFYC), Young Inventors Challenge (YIC), Creative and Critical Thinking Camp/Workshops (CCT), ASTI Leap Challenge (ALC), A-PLUS Programme and also, teacher training programmes such as, On the Wings of Fire Series, in which we help build the teaching community's knowledge through new teaching methodologies that is much-needed in today's fast-changing world. We also conduct various outreach programmes throughout the year to augment our science-related educational goals.

ASTI Feynman Challenge is a project designed in the times of the COVID-19 Lockdown in 2020. We conducted this competition on-line for all communities which includes families, refugees, orphanages, etc. We believe that the learning process should never stop no matter what the circumstances. In the words of Eric Hoffer "In a time of drastic change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exist".

ASTI Feynman Challenge is an online challenge where the students work as a team with a minimum of 2 person per team. The teams can be made up of parent and children, brothers and sisters, friends and study buddies. The team members does not need to be living together and may communicate via online platforms such as zoom etc. allowing the project to be completed fully online from the safety of home.

The teams are to invent something (tool/ method) to explain a scientific principle that they have learnt (or going to learn) in school. The invention can be a simple tool using day-to-day objects they would find at home. For example, they can design a catapult with clips and rubber bands to explain the third law of Newton. The team must then video tape their explanation of the scientific concept.

So in summary, the invention (device/ method) is basically a teaching tool. Each video should not be more than 5 minutes long which is uploaded into a YouTube channel. The video can be recorded using a mobile phone. We are not concern with the quality of the videos as long as the voices are clear and the qualities of the images are discernible.

The learning principle or pedagogy is based on the Feynman Technique which can be summarised in 4 steps:

1. Choose a concept you want to learn about
2. Pretend you are teaching it to very young learners
3. Identify gaps in your explanation;
   go back to the source material, to better understand it
4. Review and simplify.

In AFC, there is an added step between steps 1 and 2 which is; STEP 1.5. Invent the teaching tool to teach the concept.

There are 2 types of knowledge; knowing something and knowing the names of something. The Feynman technique focusses on learning to know something. The explanation much be simple that any layman or young person can understand.

2.0 METHODOLOGY AND TIMELINE

ASTI organized this program during the COVID-19 lockdown period and beyond. It is an adapted model of some of the programmes ASTI runs, taking into consideration the problems faced by students during the pandemic lockdown .

We divided the challenge into 3 categories according to age as below:

Category 1 : Age of 10-12
Category 2 : Age of 13-17
Category 3 : Above 18

The prizes for the each of the categories above are as follows:

First prize : RM 700
Second Prize : RM 500
Third Prize : RM300

We also announced3 Special Inclusivity Award for teams who show special talent and/or that have managed to do their video against overwhelming odds. Theyreceived RM500 each.

We developed the Implementation Process as below:

1) Project Development and Financing
2) Poster, Module and Webpage Development.
3) Promotion via Poster and Video
4) Participants Registration
5) Judges Briefing and Refinement of the Judging method
6) Video Preparation by participants
7) Video Submission by participants
8) Video marking and finalising the winners.
9) Winners announcement
10) Distribution of Certificates and Prizes.

We outlined the implementation timeline as follows:

Date	Activity
February 2021	Proposal And Funding
February 2021	Poster Design And Modules Developments
15 March 2021	Webpage Creation And Publish The Poster And Modules Promotion Via Youtube Video
21 June 2021	Registration Submission Deadline
21 June 2021	Video Submission Deadline
1 July 2021- 31 July 2021	Video Marking By Judges
12-13 August 2021	Finalize Winning Teams For All 3 Categories And Special Inclusivity Award
18 August 2021	Announcement Of The Winners
20 August 2021	Distribution Of Winning Prizes And E Certificates

3.0 SUMMARY OF IMPLEMENTATION

Project Development and Financing

Dr. Mohamed Yunus Yasin, ASTI's President, suggested and developed the project proposal during the Covid-19 Lockdown and school shutdown in 2020. Since the situation remained unchanged this year, ASTI continued this project in the same format in 2021.

Publicity Poster Development

We began working on the development of the Publicity Poster after the funding was approved. The material for the publicity poster was written, proofread, and then sent to the designer to be created. The poster is as shown in the image below:

Module Development

The Association of Science Technology and Innovation has developed Terms and Conditions and 7 Modules as a guideline for the participants. The lists are as stated below:

- **Terms and Conditions**

  The objectives of these terms and conditionsare
  - To outlines the rules and regulations about the Competition and all the requirements that need to be fulfilled by the participants.

- **Module 1 : How To Do A Video and Work With Your Child In Meaningful Way**
  The objective of this module is

  - To give the participant an idea of how to produce their video.
  - It is also intended to be a catalyst for the participants to start exploring the internet to get ideas for their project.
  - In part 2 of this module, there is a simple guideline on how parents can work and learn together with their children in meaningful way.

- **Module 2 : What is the Feynman Technique**
  The objective of this module is

  - To introduce the Feynman Technique for learning.

- **Module 3 : Teaching Method and Developing a Lesson**
  The objective of this module is

  - AFC as it was originally intended was to be fully completed at home. Thus it is a programme where parents or older siblings etc. will probably work with their younger learner on a project. This module is prepared to make the process of teaching or facilitating better and more effective for the non-teacher facilitator (like the parent, elder brother, guardian etc). It also helps what have been learnt applicable in the real world using relevant learning style for the learner.
  - Also AFC participants are developing an invention or a teaching method, and teaching with it – this module will also help the participants develop their teaching plan when designing their video presentation to be submitted to ASTI.

Teaching method and developing a lesson module aims to:

1. Identify characteristics of learners
2. Accommodate various learning styles
3. Conduct the demonstration and explanation using appropriate skills and tools or method they have invented
4. Identify and apply effective teaching strategies

With the information from this module, the students will be able to integrate a student-centered classroom (or "virtual classroom"). The module is designed with broader objectives than what is directly needed for AFC to make the participants learning experience more meaningful. The module is for the future non-teacher facilitators (like parents, older siblings etc.) so they may be more involved in their kids/ teams lifelong education process.

- **Module 4 : Project Management and Planning**

  The objective of this module is:

  - To understand what is a project
  - To understand project based learning as a method to learn stuff
  - To understand the different phasesand some of the processes involved in a project
  - To develop and implement a project.

- **Module 5 : How to upload video in YouTube and Video Submission Guideline**
  The objective of this module is:

  - To understand steps to upload a video in YouTube through mobile app
  - To understand steps to upload a video in YouTube through computer
  - To understand on the Video Submission procedures

This module will also help the participants be a future "Youtuber".

- **Module 6 : What is Invention?**
  The objective of this module is:

  - To Introduce the concept of invention or innovation
  - To highlight the fact that an invention or innovation or adoes not need to be very complex and difficult but, it can be very simple

- **Module 7 : Judging Criteria**
  The objective of this module is:

  - To give guidelines for participants on the judging criteria for AFC.

Webpage Development

Upon completion of the Poster and Module development, a webpage containing all this information and details of participating was created at the ASTI's website. The webpage is available at the link: **https://www.asti.org.my/afc2021/.**

The webpage contains the following items:

1) Introduction to ASTI Feynman Challenge
2) Explanation Video of ASTI Feynman Challenge
3) Registration for ASTI Feynman Challenge
4) Timeline of ASTI Feynman Challenge
5) Terms and Condition of ASTI Feynman Challenge
6) AFC Frequently Asked Questions
7) AFC KPM Approval
8) Modules of ASTI Feynman Challenge
9) Video Submission of ASTI Feynman Challenge
10) Summary of ASTI Feynman Challenge
11) Press Note of ASTI Feynman Challenge
12) AFC Launch (see also Appendix)
13) AFC Briefing

Promotion via Poster and Video

The poster advertising began on 15 March 2021. The poster was made available on ASTI's website, Facebook page, and Instagram account. The poster was also sent out via WhatsApp blasting to all of the teachers and other relevant contacts. ASTI also sent an email to all of the schools and teachers who took part in ASTI's projects, such as the Science Fair for Young Children, the Young Inventors Challenge, the Creative and Critical Thinking Camp/Workshop, ASTI Leap Challenge, and others.

Participants Registration

At the initial stage, the participants' registration deadline was set at 15 April 2020. Due to overwhelming response and request for extension of registration date, the registration deadline has extended to 21 June 2021. As of 21 June 2021, we had 660 teams registered to take part in the competition. The participants' registration breakdown according to category is as shown in the table below:

No	Category	No. of Teams
01	Category 1: Average Age Of 6-13	297
02	Category 2: Average Age Of 14-19	326
03	Category 3: Above 20	37
	TOTAL	**660**

The participants' registration breakdown according to country is shown in the table below:

No	Country	No. of Teams
01	Malaysia	643
02	Philippines	2
03	India	4
04	Thailand	3
05	Singapore	8
	TOTAL	**660**

Video Preparation by Participants

The participants were given time from 15 March 2021 to 20 May 2021 to develop their video as a teaching tool to explain a scientific principle. Again due to many request, and complication due to COvid-19 lockdowns and so on, the deadline for video submission was extended to 21 June 2021.

Video Submission by Participants

As of 21 June 2021, we had received a total of 322 video of various scientific principles and concepts. The participants were requested to upload their video in their own YouTube channel and submit the link to ASTI via the video submission google form link

No	Category	No. Of Teams
01	Category 1: Average Age Of 10-12	106
02	Category 2: Average Age Of 13-17	193
03	Category 3: Above 18	23
	TOTAL	322

The video submission breakdown according to country is shown in the table below:

No	Country	No. Of Teams
01	Malaysia	310
02	Philippines	2
03	India	2
04	Thailand	3
05	Singapore	5
	TOTAL	**322**

Video Marking and Finalising the Winners

The compiled video was send to judges for marking from 1 July 2021 to 31 July 2021.The marking criteria was rigorous. Each video was marked by two different judges and the average marks were calculated. If the marks variation between Judge 1 and Judge 2 was more than 15 marks, that particular video will be sent for third marking to reduce the variance. All the marks were compiled and analysed to determine the winners.

Winners Announcement

On the 18 August 2021, the Association of Science, Technology, and Innovation held a virtual prize giving ceremony through YouTube live to announce the AFC winners. The following is the poster for the Virtual Prize Giving Ceremony:

• **Category 1: Average Age 6-13**

The list of winners for category 1 is shown in the table below:

Country	Ranking	Team Name	Participants' Name
Malaysia	Champion	Conqueror	Ooi Yu Cheng
			Daphne Tan Sze Yue
			Giovanna Tan Sze Rou
Malaysia	1st Runner Up	Benjamin Team	Visvammritunjay A/l Muthuraman
			Pavitra A/p Chandran
			Hirranya A/p Kamaraj
			Anjali A/p Paranthaman
			Jaykishor A/l Thanayan
Malaysia	2nd Runner Up	Science Crewmates	Nur Aadila Hasna Binti Mohamad Fardillah
			Muhammad Adam Bin Sudiman
			Dayang Nur Farhana Danisha Binti Awang Fadly
			Muhammad Khairulhazmi Bin Ismail

• **Category 2:Average age 13-17**

The list of winners for category 2 is shown in the table below:

Country	Ranking	Team Name	Participants' Name
Malaysia	Champion	Microtraffic	Chan Jia Ming
			Angel Ong Sin Yee
			Gui Kah Sin
			Lim Zi Le
			Pang Jing Ting
Malaysia	1st Runner Up	Sacred Heart Sibu	Clement Lau Jing Juang
			Wong Kiung Gah
			Cristiano Leonardo
			Patrick Chew Soon Ming
Malaysia	2nd Runner Up	The Curious Scientist	Lim Zi Yang
			Lim Khoon Heng
			Lim Xiao Qian
			Lee Cheng Lian

- **Category 3:Above 18**

The list of winners for category 3 is shown in the table below:

Country	Ranking	Team Name	Participants' Name
Malaysia	Champion	Stem Is Amazing	Seow Zi Jian
			Cheong Soo Foong
			Seow Kok Ching
			Seow Pui Ee
Malaysia	1st Runner Up	The Sciencevengers	Anis Zafirah Binti Jamalludin
			Nurul Qistina Binti Jamal
			Dr Rusmawati Binti Othman
Malaysia	2nd Runner Up	Team Wired Minds	Rowhanraj A/l Rajendran
			Shaaran Arun A/l Arumugam

- **Special Inclusivity Awards:**

Special Inclusivity Award 1, 2 and 3is for three teams with Extraordinary Video which was selected by the Judging Panel. The prize given due to their amazing scores in a particular aspect of the judging criteria or the team was able to overcome challenging obstacles to submit their videos which may include under-resourced communities.The list of winners is shown in the table below:

Country	Ranking	Team Name	Participants' Name
Philippines	Best Video And Explanation	Shift	Faye Elloise Aleman
			Marian Heart D. Robaro
			Viceth Trisha D. Robaro
			Thea Eloise D. Aleman
Singapore	Video With Advance Knowledge	Team Drastirio	Karthikeyan Aakarsha Kannan
			Koo Hong Bin, Don
			Kitti-ampon Chia De En
India	Best Story Line	Adroit Squadron	Divya Satish
			Tajnashree S.S
			Sharanya M.C
			M.Ritisha

4.0 LIST OF PARTICIPANTS

The list below shows the details of 322 teams who have successfully submitted their video and completed the ASTI Feynman Challenge 2021.

Category 1: Average Age 10-12

No	Country	Team Name
1	Malaysia	Sceines Cool Team
2	Malaysia	Xjac Science Girls 1
3	Malaysia	Xjac Science Girls 2
4	Malaysia	(Ah Team)
5	Malaysia	Tricks And Illusions
6	Malaysia	Good Genes
7	Malaysia	Lego Goal
8	Malaysia	Team Zz
9	Malaysia	Niveetha / மழைநீர் சேகரிப்பு திட்டம்
10	Malaysia	Stbs Innovation Team
11	Malaysia	Einstein Group
12	Malaysia	Albert Einstein
13	Malaysia	House Of Five
14	Malaysia	Nicolaus Copernicus
15	Malaysia	Aufa
16	Malaysia	Simee Team
17	Malaysia	Psychomantis Girls
18	Malaysia	Gravity Boys

No	Country	Team Name
19	Malaysia	Power Puff Girls
20	Malaysia	Benjamin Team
21	Malaysia	Born To Win
22	Malaysia	Conqueror
23	Malaysia	William Harvey
24	Malaysia	Milk Dough Team
25	Malaysia	Avm Brothers
26	Malaysia	Sjkc Khai Meng Sc
27	Malaysia	Solution Squad
28	Malaysia	Rainy Girls
29	Malaysia	Green Eco Villa
30	Malaysia	Science Genius
31	Malaysia	Solar Science
32	Malaysia	The Five Stars
33	Malaysia	Qdqm
34	Malaysia	Warrior
35	Malaysia	Born To Win
36	Malaysia	Best Of The Best
37	Malaysia	Valluvar(D) Stars
38	Malaysia	Bunga Mawar
39	Malaysia	Bunga Kemboja
40	Malaysia	Jolly Science

No	Country	Team Name
41	Malaysia	Rose
42	Malaysia	Sains Ceria
43	Malaysia	Science Technology
44	Malaysia	Smart In Science
45	Malaysia	Sunshine
46	Malaysia	Diligent
47	Malaysia	Science Buddies
48	Malaysia	The Scientists
49	Malaysia	Smart Science
50	Malaysia	Orkid
51	Malaysia	Aiyqif
52	Malaysia	A.N.S.A.S
53	Malaysia	Team Goose
54	Malaysia	Team Cousins Puchong
55	Malaysia	Ly Ideal Team
56	Malaysia	Diamond
57	Malaysia	Popcorn
58	Malaysia	Msp Science Girls
59	Malaysia	Ldv 415
60	Malaysia	Cheer Girls
61	Malaysia	Shadowmax
62	Malaysia	Science Experiment Girls

No	Country	Team Name
63	Malaysia	Experimental Girls
64	Malaysia	Kmt Conductor
65	Malaysia	Sains Teknologi
66	Malaysia	Mayaa
67	Malaysia	Future Scientist
68	Malaysia	Moonlight
69	Malaysia	Sunflower
70	Malaysia	We Love Science
71	Malaysia	Galaxy Friends
72	Malaysia	Smart And Excellent Juniors
73	Malaysia	Fnasa
74	Malaysia	The Fantastic Four
75	Malaysia	Shanada
76	Malaysia	Thaarujaiy
77	Malaysia	Big Bang
78	Malaysia	Mika Miyo
79	Malaysia	Think Out Of Cubicles
80	Malaysia	The Sunshine 2021
81	Malaysia	Science Crewmates
82	Malaysia	Starlight Team
83	Malaysia	The Friendship Ship
84	Malaysia	Super Girls

No	Country	Team Name
85	Malaysia	Team Ked
86	Malaysia	Kanniesh Team
87	Malaysia	Air Cooler
88	Malaysia	Sago's Steel
89	Malaysia	D'young Edison
90	Malaysia	Afc 2021 Sains Malaysia
91	Malaysia	The Scientific Thinkers
92	Malaysia	Sk Buntong
93	Malaysia	Sk Buntong
94	Malaysia	Solution Squad
95	Malaysia	Pei Hua Team B
96	Malaysia	Pei Hua Team A
97	Malaysia	Intelligent's
98	Malaysia	Science And Engineering
99	Malaysia	Smart Girls
100	Malaysia	The Scientist
101	Malaysia	The Marian Science Studio
102	Malaysia	Smart Science
103	Malaysia	Nemo Bone
104	Malaysia	Bijak Sains
105	Malaysia	Marian's
106	Malaysia	Roses

Category 2: Average age 13-17

No	Country	Team Name
1	Malaysia	Bumble Bee
2	Malaysia	Imagine
3	Malaysia	Trusty
4	Malaysia	The Ardent Learners
5	Malaysia	Estelle
6	Malaysia	The Isaac Newtown
7	Malaysia	Tamilanda
8	Malaysia	Beta
9	Malaysia	The Milky Way
10	Malaysia	Worthy
11	Malaysia	Sun Flower
12	Malaysia	Science Is Magic
13	Malaysia	Bokuto
14	Malaysia	Nature And Science
15	Malaysia	Neongers
16	Malaysia	3 Racha
17	Malaysia	Egg Siblings
18	Malaysia	The Dynamic
19	Malaysia	Yong Peng Investor
20	Malaysia	Panion
21	Malaysia	Stardom
22	Malaysia	Sasuke
23	Malaysia	Smkst Power
24	Malaysia	Nims
25	Malaysia	Atlas
26	Malaysia	Smkst Power 3
27	Malaysia	Smkst Power 14
28	Malaysia	Smkst Power 1
29	Malaysia	Smkst Power 7
30	Malaysia	Smkst Power 5
31	Malaysia	Smkst Power 4
32	Malaysia	Smkst Power 11
33	Malaysia	Smkst Power 12
34	Malaysia	Smkst Power 8

No	Country	Team Name
35	Malaysia	Smkst Power 9
36	Malaysia	Smkst Power 10
37	Malaysia	Smkst Power 2
38	Malaysia	Infinity Jobarian
39	Malaysia	Awkward Haccers
40	Malaysia	Calista
41	Malaysia	Albert Jr
42	Malaysia	The Curious Scientist
43	Malaysia	Vxt Team
44	Malaysia	Sacred Heart Sibu
45	Malaysia	Sas Girls
46	Malaysia	Sas Guardian
47	Malaysia	The Haeil
48	Malaysia	Bellatrix
49	Malaysia	Newton
50	Malaysia	Smkst Power 15
51	Malaysia	Sushifer
52	Malaysia	Sas Defender
53	Malaysia	Mr.azac
54	Malaysia	Three Musketeers
55	Malaysia	Albert Einstein
56	Malaysia	Little Brainies
57	Malaysia	Encyclia
58	Malaysia	Bright Side (Changed From The Brothers Of Matter)
59	Malaysia	Da Vinci Squad
60	Malaysia	Allesandro Volta
61	Malaysia	Buddy
62	Malaysia	4a Smkbm
63	Malaysia	Ket
64	Malaysia	Daystar Rays (Kawan Dd)
65	Malaysia	The Little Einsteins
66	Malaysia	The Bellas
67	Malaysia	Einstein Vinci
68	Malaysia	Eruby
69	Malaysia	X-skmei
70	India	Adroit Squadron
71	Malaysia	Astroid

No	Country	Team Name
72	Malaysia	Maz Pj Form5 Team 1
73	Malaysia	Moon And Saturn
74	Malaysia	Erudes Elite
75	Malaysia	Girls Power
76	Malaysia	Sisyphus
77	Malaysia	Platinums
78	Malaysia	Shazahanik
79	Malaysia	Generic Brothers
80	Malaysia	Smk Dato' Syed Omar
81	Malaysia	Biofuel Generation From Food Waste
82	Malaysia	Star Innovators
83	Thailand	Ppn Mini Inventors
84	Malaysia	Echo
85	Malaysia	Sole Survivors
86	Malaysia	Science Panther
87	Malaysia	Curious Minds
88	Malaysia	Newton's Apple
89	Malaysia	Alfha V
90	Malaysia	May-ely Aquamarine
91	Malaysia	Gryffinclaw
92	Malaysia	Mcr
93	Malaysia	Moonchild
94	Malaysia	Smkst Power 16
95	Malaysia	Newton's Apprentice
96	Malaysia	Newton Infinity
97	Malaysia	Yong Peng Inventor
98	Malaysia	The Scientific Personae
99	Malaysia	Vagabond Team
100	Malaysia	Team Curiosity
101	Singapore	Team Futura Uv
102	Malaysia	Dana
103	Malaysia	Tb-novators
104	Malaysia	Team Sakura
105	Malaysia	Horizon Team
106	Malaysia	Edwardians
107	Malaysia	Euporium
108	Malaysia	Gravity Force

No	Country	Team Name
109	Malaysia	Heart2heart
110	Malaysia	Nitrogen Bond
111	Malaysia	Amigos
112	Malaysia	Headless Chickens
113	Malaysia	Smk Temenggong Kati - 3
114	Thailand	Celebrity
115	Malaysia	Petezen
116	Malaysia	Steins; Gate
117	Malaysia	Arthur Tansley
118	Malaysia	Bombastic
119	Malaysia	Study Buddy 3
120	Malaysia	Tomodachi
121	Malaysia	Future Scientists
122	Malaysia	Papi Chulo
123	Malaysia	Microtraffic
124	Malaysia	The Sparkz
125	Malaysia	Hydroponics System
126	Malaysia	Team Genius
127	Malaysia	Star Tech
128	Malaysia	Young Scientists
129	Malaysia	The Best Team
130	Malaysia	Rubrikx
131	Malaysia	Hyzu
132	Philippines	Philippine Science High School - Ilocos Region Campus
133	Malaysia	Super Sisters
134	Thailand	Satu Satu
135	Malaysia	Beta
136	Malaysia	Goala
137	Malaysia	Team Nova
138	Malaysia	Bio Babies
139	Malaysia	200 & 10 Iq
140	Malaysia	Oreodrizzle
141	Malaysia	Alpha
142	Malaysia	Lightning
143	Malaysia	Xylene
144	Malaysia	Vouis Luitton Diur
145	Malaysia	Sina5

No	Country	Team Name
146	Malaysia	Nuclear Bond
147	Malaysia	Freefall Boys
148	Malaysia	Kcp
149	Malaysia	Masterminds
150	Malaysia	Imtiyaz N Gang
151	Malaysia	Krypton 18
152	Malaysia	Ailie
153	Malaysia	Shazahanik
154	Malaysia	Space Detective (Amiruddin N Gang)
155	Malaysia	The Thinkers
156	Malaysia	Cclv Merbau
157	Malaysia	Attack On Science
158	Malaysia	Transonic
159	Malaysia	Sana
160	Malaysia	2kaa Rpkians
161	Malaysia	Rwas
162	Malaysia	Vict' Buddies
163	Malaysia	The Group
164	Malaysia	Genosent.co
165	Malaysia	The Marian Science Studio
166	Malaysia	Team Whalefall
167	Malaysia	Merbau Squads
168	Malaysia	Genius Neutron
169	Malaysia	Tha-484
170	Philippines	Shift
171	Malaysia	Evolve
172	Malaysia	Form 5 A-team
173	Malaysia	Dynamic
174	Singapore	Team Avon
175	Singapore	Team Bravo
176	Singapore	Team Drastirio
177	Singapore	Team Grit
178	Malaysia	Born To Win
179	Malaysia	Mr.science
180	India	Einstein Isotopes
181	Malaysia	Shared Brain Cells
182	Malaysia	4700

No	Country	Team Name
183	Malaysia	Mtvs Dream Chasers
184	Singapore	Team Elon
185	Singapore	Team Falcon
186	Malaysia	Smkst 5 Syukur
187	Malaysia	Keramat 5
188	Malaysia	Supernova/ Sc101
189	Malaysia	Hydrogen Yp Boys
190	Malaysia	Integreat
191	Malaysia	Intergreat
192	Malaysia	Dream Team
193	Malaysia	Scity

Category 3: Above 18

No	Country	Team Name
1	Malaysia	Kolej Vokasional Taiping
2	Malaysia	Team Balabala
3	Malaysia	Aqua Not. System
4	Malaysia	Vortec
5	Malaysia	Afc2021 Adobe 1
6	Malaysia	Afc2021 Adobe 2
7	Malaysia	Afc2021 Adobe 3
8	Malaysia	Team So Basic
9	Malaysia	The Kho's Family
10	Malaysia	Stem Is Amazing
11	Malaysia	Army
12	Malaysia	The Sciencevengers
13	Malaysia	Doraemon
14	Malaysia	Genius Chemist
15	Malaysia	Sekata 1
16	Malaysia	Chua Doraemon
17	Malaysia	Chrome
18	Malaysia	Pulling Pressure Play (3p)
19	Malaysia	Science Is Fun
20	Malaysia	Best Of The Best
21	Malaysia	Team Wired Minds
22	Malaysia	Kav Team
23	Malaysia	Clip Centimeter

5.0 JUDGING PROCESS AND PROCEDURES

Judges Selection

An invitation was sent to past Young Inventors Challenge (YIC) and Science Fair for Young Children (SFYC) judges by e-mail as well as possible new judges. A total of 94 judges from different backgrounds agreed to volunteer and contribute as judges for ASTI Feynman Challenge (AFC) 2021. The AFC judging team was headed by a committee called the 'Judging Panel' which is made up of experienced Judges. The task of the judging panel is to develop the overall policy and oversee the judging process.

The AFC 2021 judging team and judging panel was led by a Chief Judge and worked independently from the organising committee in line with ASTI's policy for judging. A WhatsApp group was created for the judging panel to facilitate communications and to have discussions. Ts. Dr.Umaiyal Munusamy was appointed as achief judge and Mr. Gan Quan Fu as the assistant chief judge to head the judging panel and manage the judging process.

Judging Process and Procedures

AFC Judging Procedure was developed as guidance for the judges in the competition. The Judges Code of Conduct and Terms of Reference were also developed for the judging team as a guideline and reference. Meanwhile AFC judging panel developed the Rubric to be used by the judges for video marking purpose. This rubric was also used as the scoresheet by the judges. Upon completing the rubric, a trainingvideo were recorded and shared via email for judges as their guidance and sent together with the marking sheet. Any questions raised was answered by the Chief Judge.

Since AFC is an online competition, the judging process for AFC was also conducted online. The videos for marking were sent to the judges on 1 July 2021. The deadline for the video marking was 31 July 2021. Videos were sent to the judges by e-mail along with the rubric and sample filled rubric to help in the understanding of the marking procedure. A total of 322 videos submitted by the participants were marked by the judges. Each video was marked by 2 judges independently. The marks by the judges were compiled by the ASTI Secretariat. Upon compiling the marks, the top 15 videos for each category based on the marked received were selected by Judging Panel. A total of 7 experience judges from the judging panels selected the winners of AFC for each category as well as the Inclusivity Award winners. Discussion between the judges were held on 12th August and 13 August 2021 via Google Meet to finalise the winners.

The winners of the competition and the Inclusivity Award recipients were announced on 18 August 2021 at 5.00 p.m. via YouTube live.

All judges involved in the video marking were given an e-certificate for their contribution.

Judging SWOT Analysis

Strength

- Was able to conduct the entire process online.
- Detail elaboration of the rubric.
- Use videos, applications, and gadgets to help participants understand better science.
- Empower your imagination to grow wild.

Weakness

- Lack of understanding on innovation among the participants.
- Rubric can be different according to category.
- Video-making equipment available for the students.
- Some of the inventions are on a very basic level. To develop high-quality presentations, a standard must be established, to be in consistent.

Opportunity

- The student's ability to present could improve.
- Excellent platform for encouraging innovative scientific explanations.
- Provide students with opportunities to learn about product creation and innovation.' There seem to be a lot of possibilities for expanding this to other kinds of competition that our creativity could hold.

Threats

- The ability to determine the difference between an experiment and an innovation.
- Misunderstanding of judging criteria due to the lack of opportunity for communication between judges.

Recommendations

- More interaction between judges should be held.
- Embed each video in the scoresheet rather than needing to go to two separate URL.
- Ensure that the schools/students are aware of the judging criteria and how they are expected to perform.
- Reduce the Production quality weightage in judging score sheet.
- More towards The Common European Framework of Reference for Languages (CEFR)
- Participants can be briefed more on the Guidelines. Some of the content creators seem not to understand the guidelines.

A survey of the judges was also conducted to obtain their feedback. The AFC Judging Procedure were all provided to the judges. The judges also appeared to be familiar with the judging scoresheet that had been prepared for evaluating the videos. Some judges stated in the survey that they would prefer more judges training for the ASTI Feynman Challenge. The majority of judges believed that using Google Scoresheet to submit their ratings was simple. Overall, the judges were satisfied with the judging procedure and expressed their interest in participating as judges if the ASTI Feynman Challenge is conducted again. The majority of the judges agreed that most of the participants' videos were of good quality.

6.0 FUNDING AND BUDGET

ASTI Feynman Challenge was funded by mostly by Megatech College. The income and expenses are as shown below:

Income	(RM)
Megatech College	28,000.00
Y.B. Tuan Ganabatirau A/l Veraman	1,000.00
Total Income	**29,000.00**
Less: Expenditure	
Modules Development & Licencing	5,000.00
Winning Prize For Category 1: Average Age Of 10-12	1,500.00
Winning Prize For Category 2: Average Age Of 13-17	1,500.00
Winning Prize For Category 3: Above 18	1,500.00
3 Special Inclusivity Award (Rm 500 X 3)	1,500.00
Designing And Promotion	2,000.00
Training And Briefing	2,000.00
Virtual Prize Giving Ceremony	5,000.00
Project Management And Secretariat Expenses	14,000.00
Total Expenditure	**34,000.00**
Excess Of (Expenditure)/ Income*	**(5,000.00)**

*The excess of expenditure was overwritten by Association of Science, Technology and Innovation internal funds.

7.0 SURVEY ANALYSIS

At the end of the project, ASTI conducted a survey by sending out google form links to all the participants to get their feedback for future improvement about the project. The participants were asked 10 questions and a total of 107 responses were received. The responses have been presented in graph and followed by explanation as below:

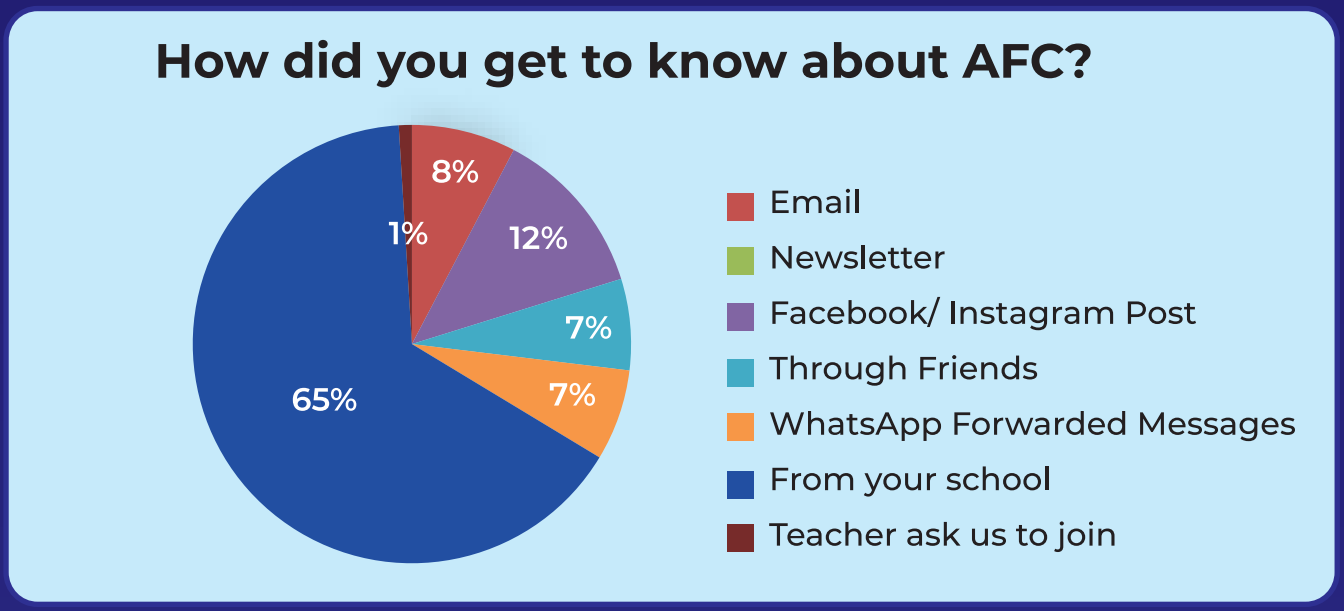


Figure 1 : How to the participants get to know about

Figure 1 shows how the participants get to know about AFC. The majority of the participants know through their school, while the rest through email, Facebook/ Instagram posts, friends, and WhatsApp conversations.

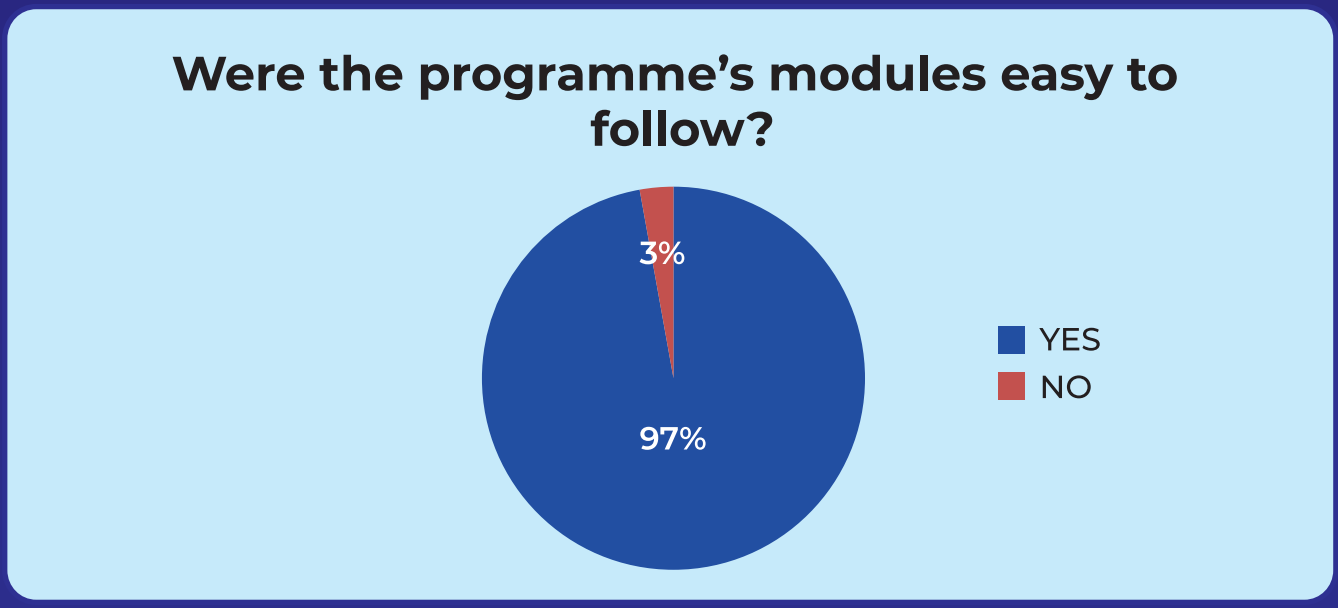
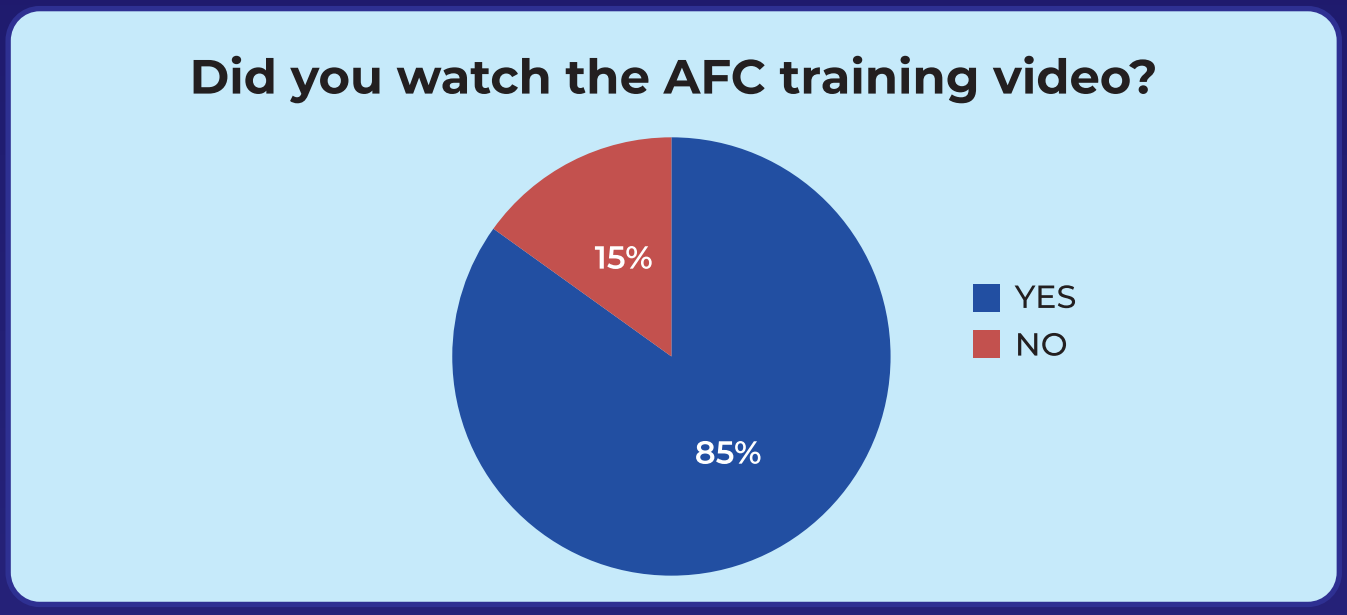


Figure 2 : Training Modules

According to the survey results, the modules were easy to follow as the'y were designed in a simple way.



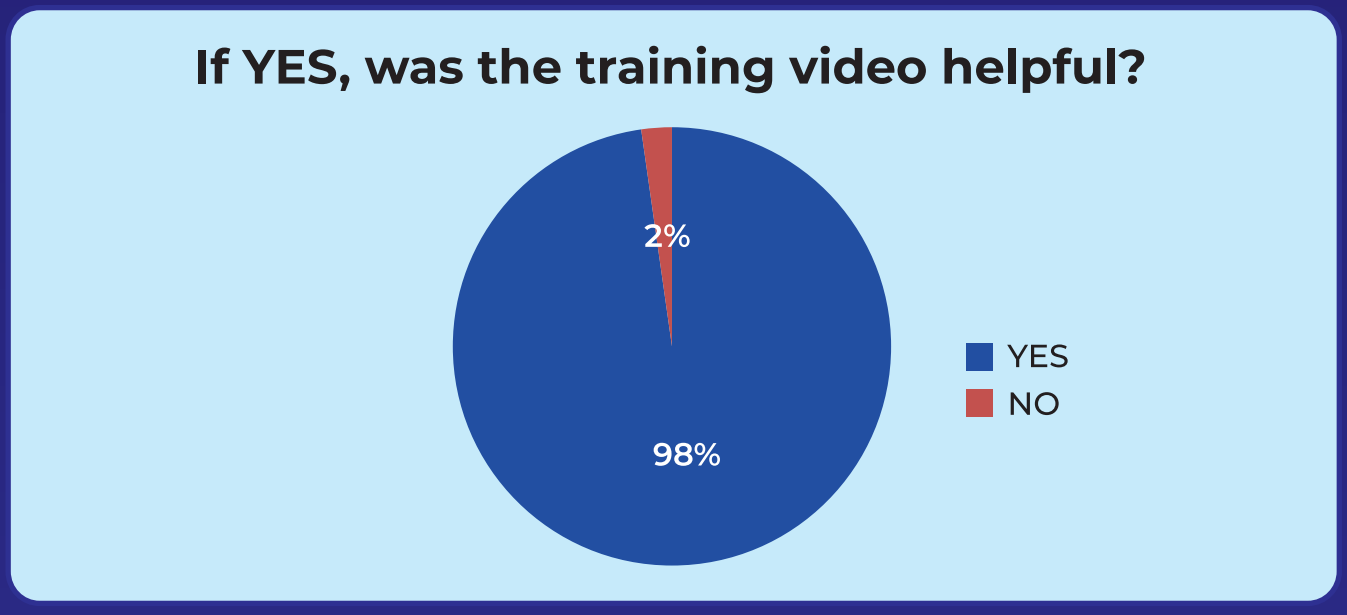
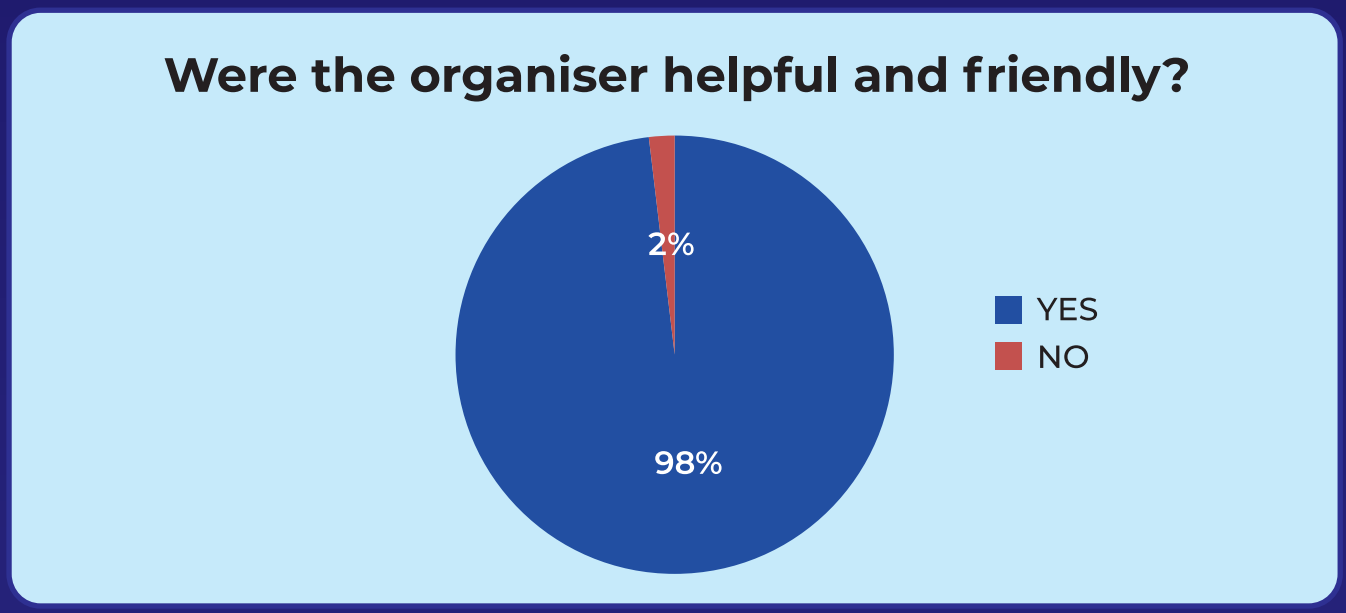


Figure 3 : Training Videos

According to the results of the overview, the presenter were able to direct the participants on the Feynman concept and guide them through the video submission steps.



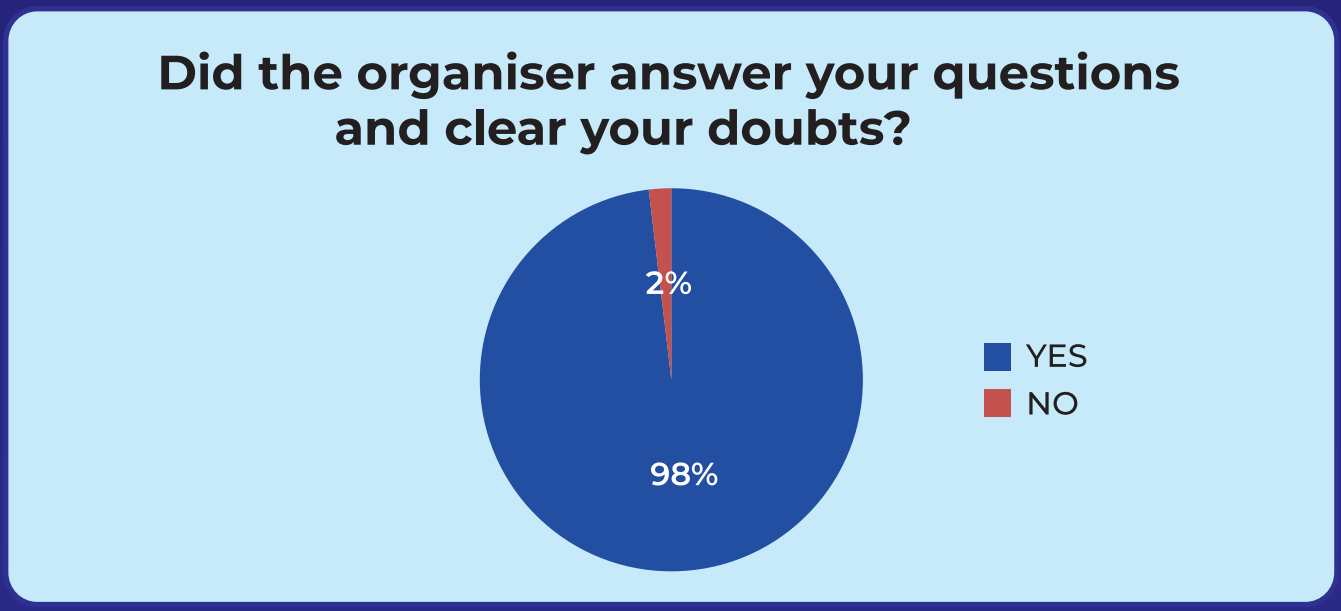


Figure 4 : Organiser's Assistance

As seen in Figure 4, the majority of the participants rated the organisers were very helpful. It demonstrates that ASTI has aided participants in better understanding the concept and participating in AFC with greater enthusiasm.

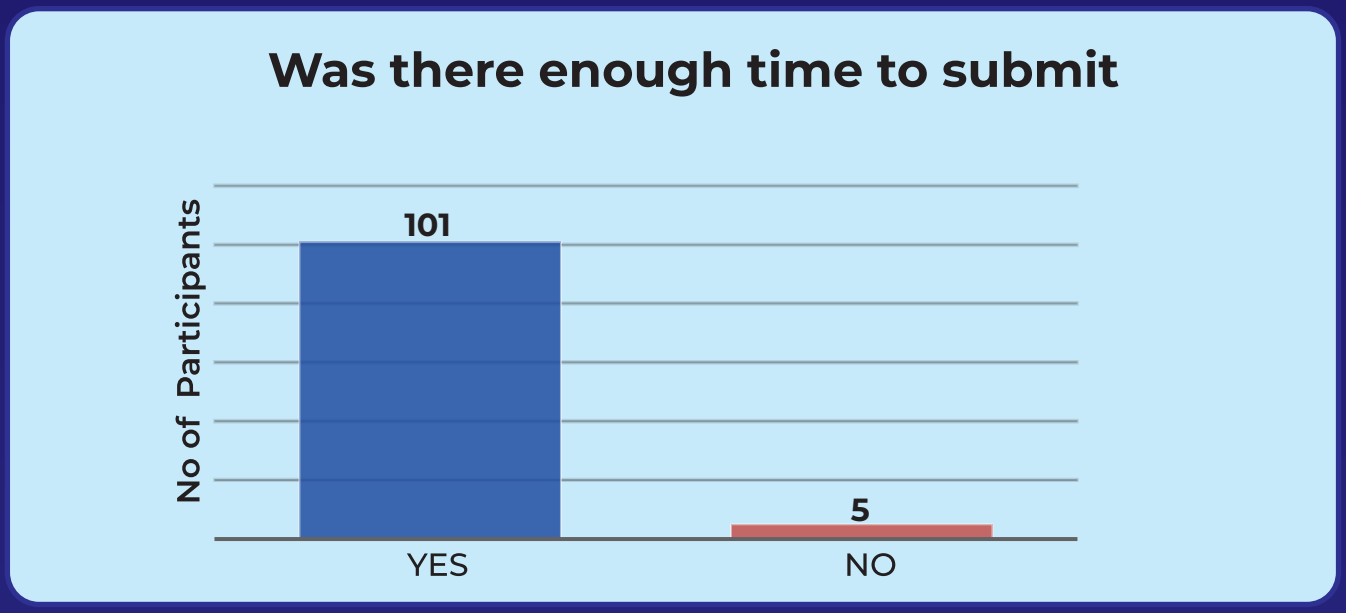


Figure 5 : Time given to submit video

The majority of participants agreed there was enough time to submit video. As it were, five people said no.

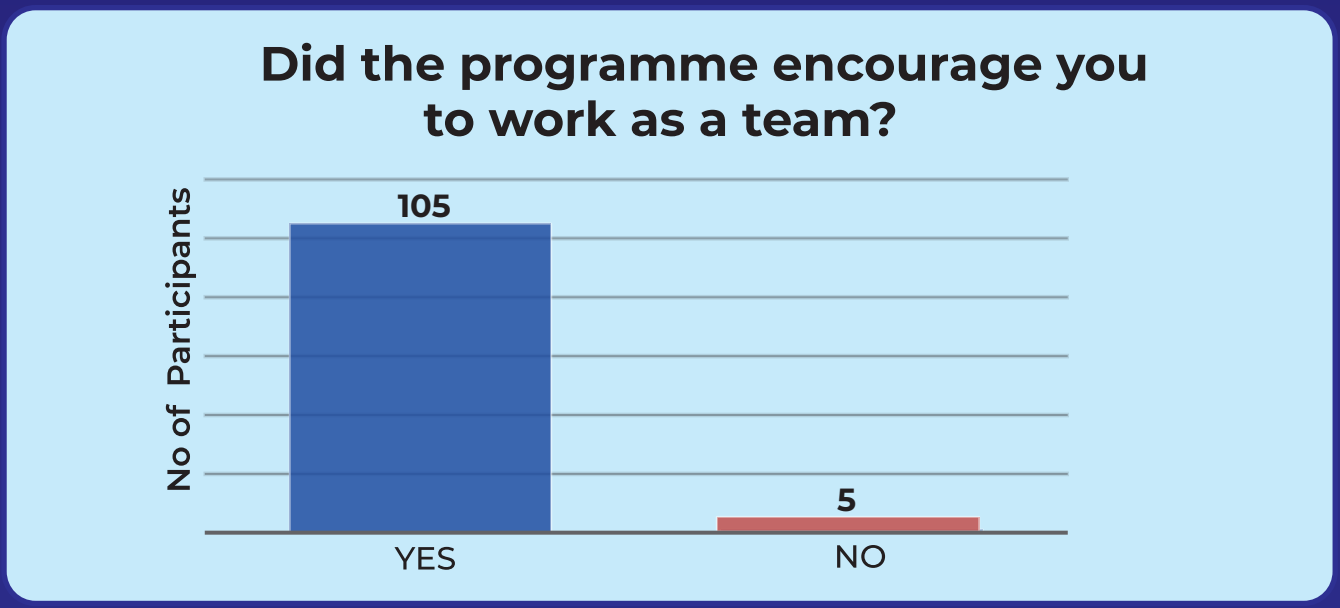


Figure 6 : Encouragement to work as team

According to the data, majority of participants agreed that AFC promote cooperation. The competition, according to the data, has influenced them to work in groups.

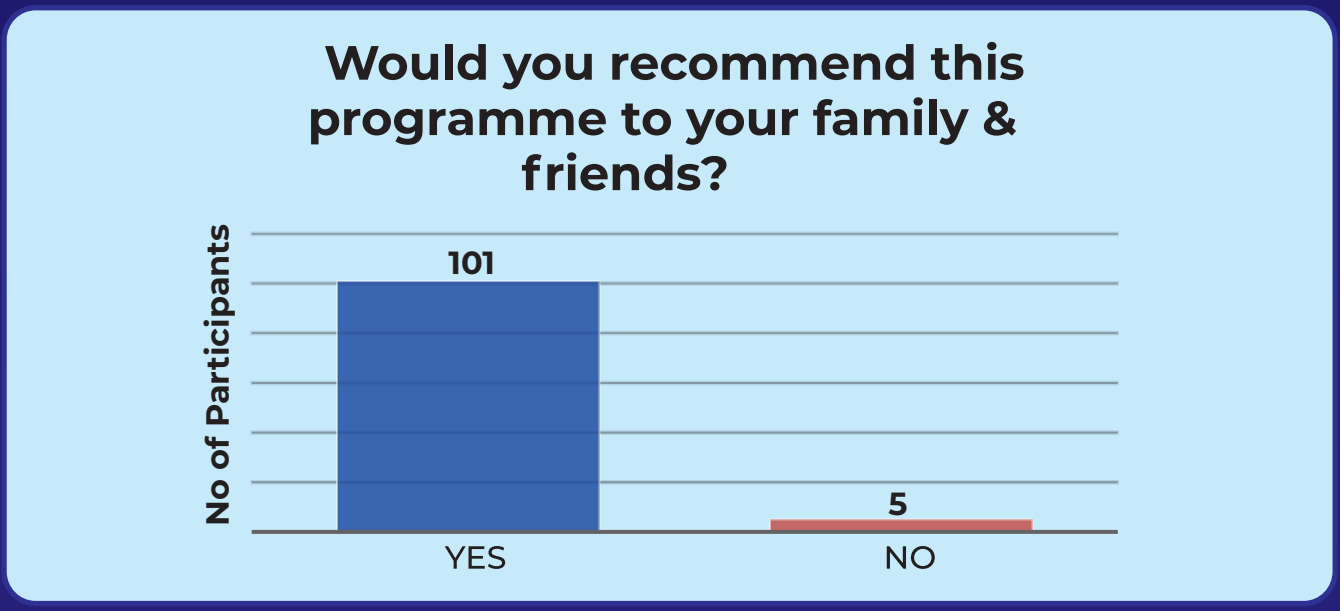


Figure 7 : Recommendation of AFC Competition

Participants indicated that the competition encouraged them to participate and enhance their teamwork and communication skills (see Figure 6). They are also looking forward to participate in AFC in the future. ASTI is also eager to contribute to a wider range of participants in the near future.

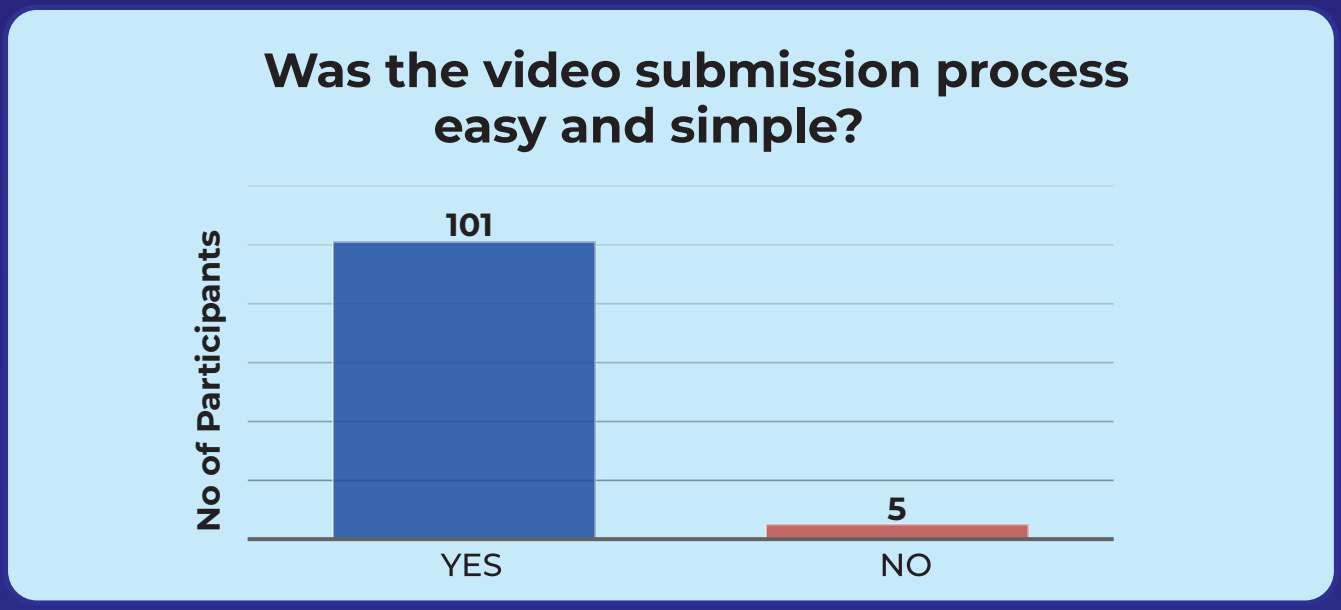


Figure 8 : Video Submission Process

Figure 7 shows that the majority of participants found the video submission process to be simple.

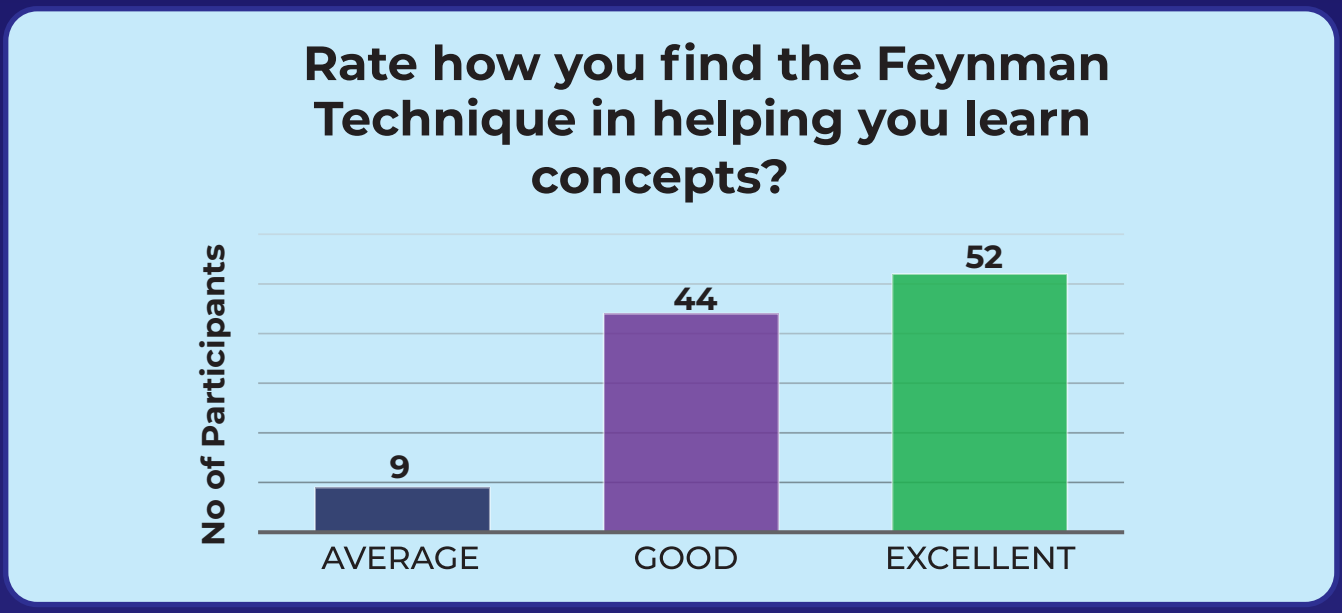


Figure 9 : Rate on how Feynman Technique helps to learn the concept

As seen in Figure 8, the majority of participants evaluated the Feynman Technique's effectiveness at presenting the concept as excellent or good. The organiser plans to do more training on the Feynman Technique in the future.

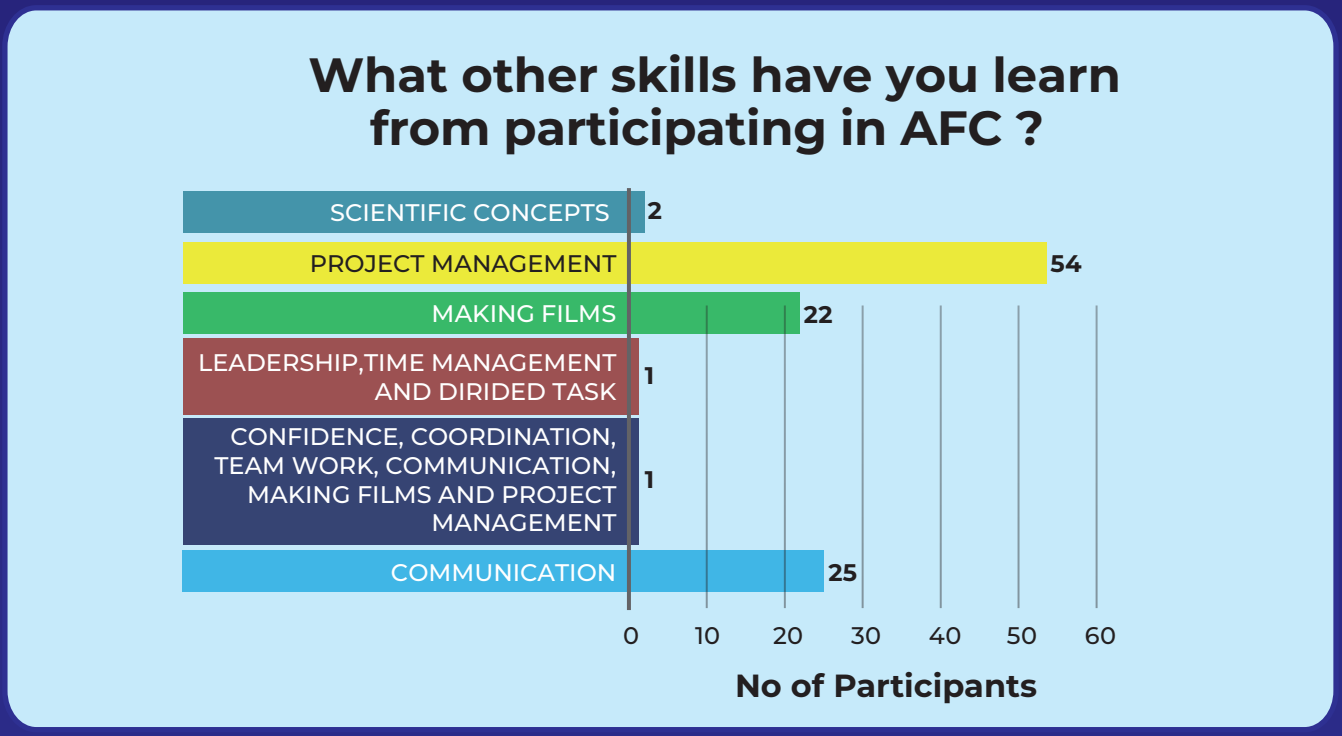


Figure 10 : Other skill developed from participating in AFC

In this above question, participants may choose skills which they have learnt the most during the AFC. As shown above, the majority of the participants mentioned that they developed project management, filmmaking, and communication skills. The Feynman technique is a method to learn new concepts. The organiser hopes that this experience will help them use the technique more in their learning.

8.0 RECORDS FROM SURVEY

Based on the survey, SWOT analysis was developed and below are the results.

Strength

- Cost effective program
- Able to reach out to more people in short period of time.
- Able to reach 5 countries
- Good support and publicity from Ministry of Education Malaysia.
- The instruction given is clear and the organiser is very friendly.

Weakness

- Some participants did not understand the Feynman technique as seen from their videos.
- Some participants faced difficulties to communicate with their team mate (due to lockdown and bad internet connection).
- Some team did not have sufficient time to submit video as they registered late

Threat

- The participants face difficulties to understand the Feynman Technique
- Schools do not promote AFC

Opportunity

- The participants learned about Feynman Technique for learning and is able to understand concepts more deeply.
- The participants learned about video making and editing process using new applications.

Recommendation

- Promotion need to be more active and to reach wider audience
- Overall everything is excellent but maybe the organiser may improveby making the contest more interesting.
- Besides video recording, the team should also send a written report of the whole innovation done.
- Organize more competition for secondary level students
- Members in each group should be 3 or less and not more than it. By this, it will push them to create and learn videos such as editing skills and explanation of a concept.

9.0 CONCLUSION

This year's ASTI Feynman Challenge (AFC) was a big success, with the project's promotion reaching to over five countries.

The COVID-19 lockdown phase, allowed families to come together to generate a meaningful learning outcome via AFC. We hope that parents will not only become more aware of their children's learning skills, but will also cooperate in the learning process to strengthen family cohesion.

We would like to express our gratitude to all of our sponsors, judges, and volunteers for their contributions to making AFC 2021 a big success.

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ASTI FEYNMAN CHALLENGE 2021 (AFC)

PRESS RELEASE

ASTI is a not-for-profit organization with the objectives of empowering young people through various science-based and skills-development projects. ASTI Feynman Challenge was a project designed in the times of the COVID-19 Lockdown in 2020. We conducted this competition on-line for all communities which includes families, refugees, orphanages, etc. We believe that the learning process should never stop no matter what the circumstances. As Eric Hoffer "In a time of drastic change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exist".

In 2020, we had received 650 registrations from 7 countries, of which 318 teams successfully submitted their videos. Considering its overwhelming response, we would like to continue the same programme this year. AFC 2021 is mainly funded by Kolej Megatech.

For 2021, the teams can be made up of parent and children, brothers and sisters, friends and study buddies. The team does not need to be living together and may communicate via online platforms such as zoom etc. Each video can be no more than 5 minutes long which is uploaded into YouTube. The video can be recorded using their mobile phones. The learning principle or pedagogy is based on the Feynman Technique which can be summarised in 4 simple steps:

1. Choose a concept the learner want to learn about
2. Pretend you are teaching it to very young learners with the teaching tool that they have invented.
3. Identify gaps in their explanation; go back to the source material, to better understand it
4. Review and simplify – and produce a video with the final explanation.

There is an added step between steps 1 and 2 which is; STEP 1.5. Invent the teaching tool to teach the concept.

The AFC team has also produced modules to help the participants with their project and they are: Module 1_ How To Do A Video and Work With Your Child In Meaningful Way, Module 2_ What is the Feynman Technique, Module 3_Teaching Method and Developing a Lesson, Module 4_Project Management and Planning and Module 5_ How to upload video in YouTube and Video Submission Guidelines.

We hope not only parents can learn about their children's learning capacity – but also work as a team to build a better family cohesion post COVID-19.

Potential participants can register and download terms and condition, materials and guidelines at this webpage: https://www.asti.org.my/afc2021/

"If you can't explain it simply, you don't understand it well enough." - Albert Einstein

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Science, Technology and Innovation in Action

ASSOCIATION OF SCIENCE, TECHNOLOGY & INNOVATION

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