

Moon Village Association

WHITE PAPER

Education & Outreach Working Group



**Version 1
13 April 2020**

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INTRODUCTION

The Moon Village Association (MVA) is an international non-governmental organisation based in Vienna. MVA is a platform that provides a permanent global forum for these stakeholders like government, university, research centers and the public. It aims to foster collaboration for the development of moon explorations projects, either public or private initiatives. MVA promotes the Moon Village vision that will play a key role in the long-term, peaceful, and sustainable evolution of humankind.

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VISION

The Moon Village Association (MVA) is promoting Education and Outreach, as the pillars toward achieving a sustainable long-term presence on the Moon and the advent of creating a Moon Village.

The associated objectives of the Education & Outreach working group are:

- Engage as many people as possible around the world,
- Inspire young generations to pursue professional careers in space and related lunar exploration fields,
- Create an MVA network internationally in all cities. The goal of the network is to interact with the public to organize local events and talks (same language) about the Moon Village and its implementation. The network could focus on aspects of interest for the local community in the city that organizes the event or talk,
- Create a balanced community that aspires to create a Moon Village as instrumental to a new generation of equality in the fields of STEM/STEAM. In this framework, an special initiative called "Women on the Moon initiative" (WoMI) has been launched in 2019 to encourage women to participate in lunar exploration missions and activities that include a wide range of positions from entry level to project leadership roles and aspiring astronauts with the goal of becoming the first women on the Moon,
- Encourage cooperation with other organisations, as partners, in order to support their mutual goals of internationally promoting space, by developing cooperative activities around Outreach, Education, and create a balanced community in the fields of STEM/STEAM.

The Education & Outreach working group will also interact with the other MVA working groups and projects. For instance, the MVA payload project (i.e. camera mounted on-board a Moon lander) is a strong illustration of the Moon Village vision: it will create a semi-permanent overview effect and aim to perform numerous scientific experiments. That's a nice way to inspire and engage the public, and in particular the youngest people, toward a peaceful use of outer space.

KNOWLEDGE : product of an exploration system

Why do humans explore ?

To summarize, the three main reasons for human exploration are:

1. To expand the knowledge of our surroundings
2. To improve the technologies
3. To inspire interest in science and technology

Knowledge is the product of the exploration process. Expanding to our surroundings enables to deliver it to the scientists, the technologists/ explorers, the enterprises and the public. In other words, the knowledge gained by the space exploration system is the value-added delivery to the beneficiaries or stakeholders. Therefore, to ensure the maximum value delivery, we may model the space infrastructure as a knowledge delivery system.



Fig. 1: MVA Branding 2020

In this frame, MVA will act as a knowledge repository and a peer-learning platform related to the Moon activities and missions. The MVA provides adaptive approaches for remote access to every country through its National coordinators but also the necessary community support and materials through its institutional and individual members in order to scale up the impact on gender equality. It would facilitate coordination, coherence and synergy between the various partners around the globe.

Consequently, **KNOWLEDGE** will be the **BONE** of our activities within the Education & Outreach Working group.

Types of knowledge ?

There are five main types of knowledge to be used as sources of inspiration: Scientific-, Resource-, Technical-, Operational-, and Experience-related knowledge, see Fig.2.

They will be used for the following purposes :

- EDUCATION (education material, learning tools)
- OUTREACH (awareness, transfer knowledge, new initiatives).

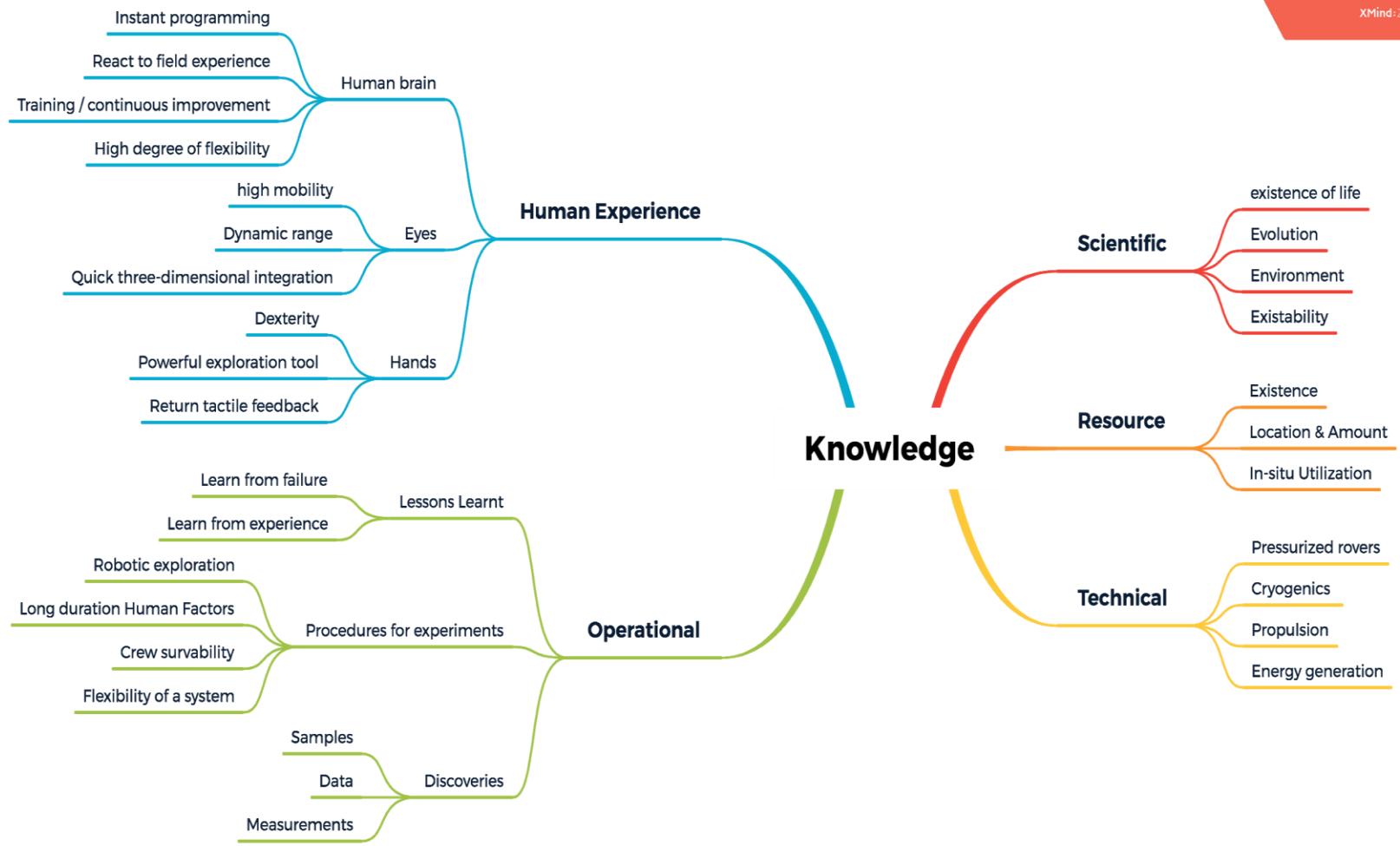


Fig. 2: Different types of knowledge

EDUCATION & OUTREACH PILLARS

The Education & Outreach pillars rely upon the four steps of the following cycle, see Fig.3:

1. KNOWLEDGE material
2. LEARNING TOOLS that transform knowledge material into educational content
3. SHARE knowledge during events, conferences, workshops, etc. using the learning tools
4. TRANSFER knowledge to foster new partnerships, new collaborations/ events, new global outreach initiatives (e.g. surveys, essay contest, exhibitions).

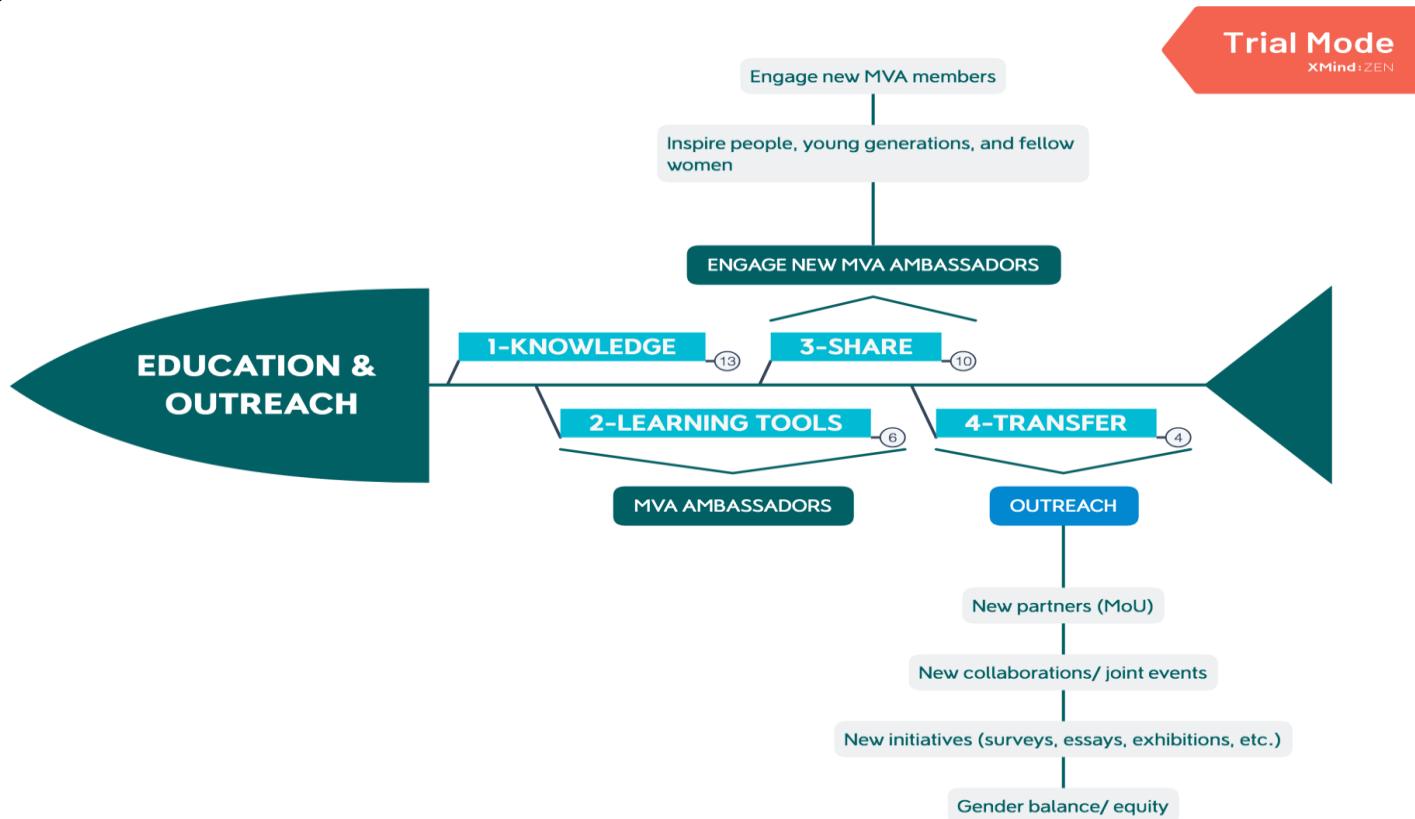


Fig. 3: Education and Outreach pillars

EDUCATION

The Education pillar is dedicated to (see Fig. 4):

- In terms of **knowledge**, create education material based on :
 - The collection of existing learning tools from MVA partners/ organisations/ collaborators/projects
 - Where knowledge gaps have to be filled in, The creation of complementary education material based on science-on-the-field experiments (e.g. collaboration with ESA/ESTEC EuroMoonMars missions)
- Create **learning tools** that are adequate to foster the learning process, first within MVA, then outside MVA
- **Share** the acquired knowledge acting as MVA ambassadors, with the final objective to bring on-board new MVA ambassadors from all over the world, including:
 - Young generations, and
 - Fellow women of the Moon.

OUTREACH

The Outreach pillar is dedicated to reaching out external collaborators in order to (see Fig. 5):

- Foster **awareness**: Define and implement new joint initiatives with MVA collaborators/partners/ organisations/ projects (e.g. surveys, essay contests, exhibition)
 - ➔ Collect raw material, analyse them and convert main outcomes as **knowledge** database (see Fig. 10),
- Organising events around the world where MVA ambassadors will attend and **share** their knowledge about Moon Exploration,
- **Transfer** and extend this knowledge through the MVA global outreach (members, working groups, partners, public) with the final objective to reach:
 - New partnerships (MoU)
 - New collaborations/ joint events
 - New initiatives worldwide (surveys, essay contests, artistic exhibition, etc.).
 - ➔ that will feed awareness as well as the MVA partform.

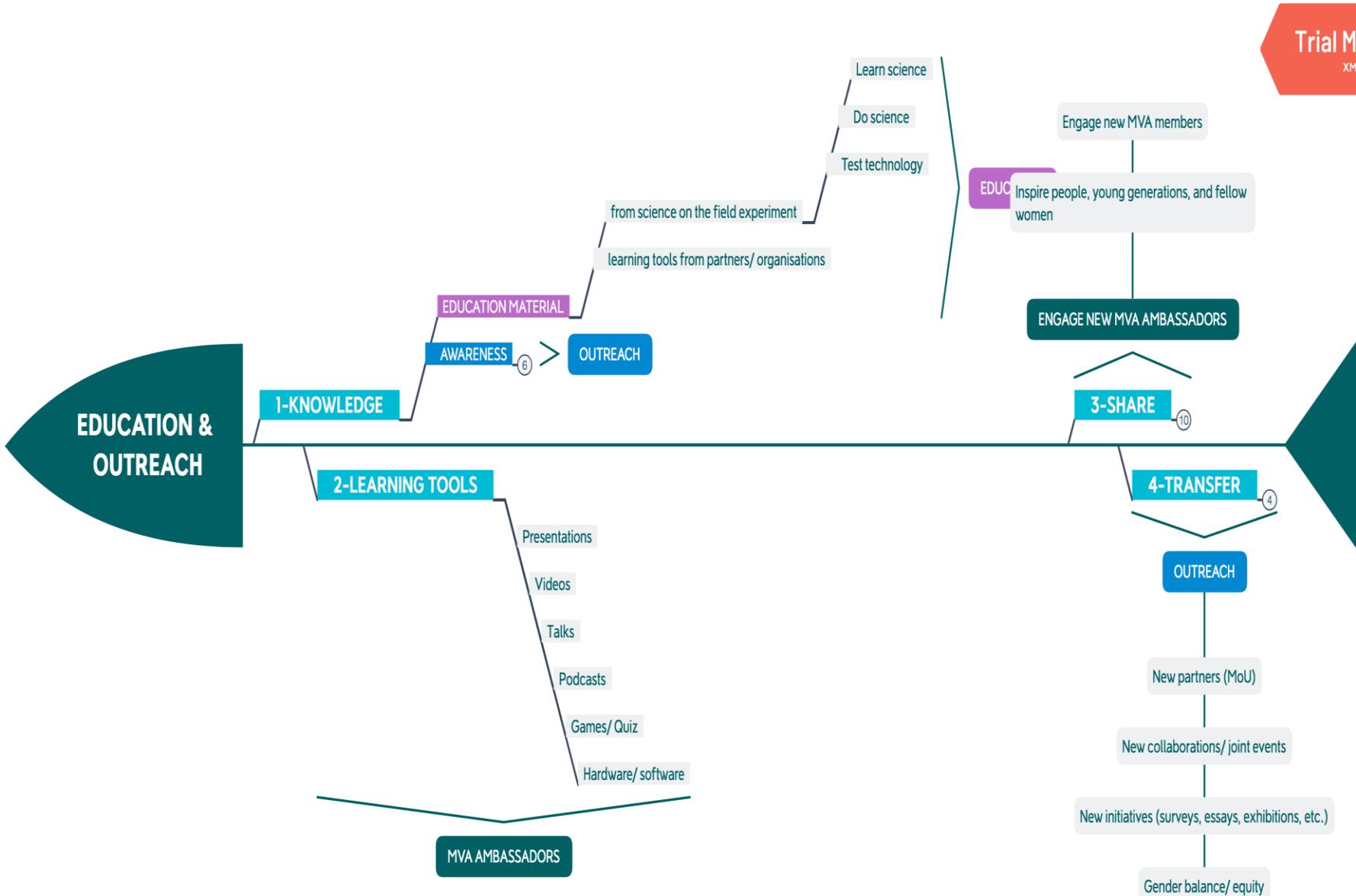


Fig. 4: Education

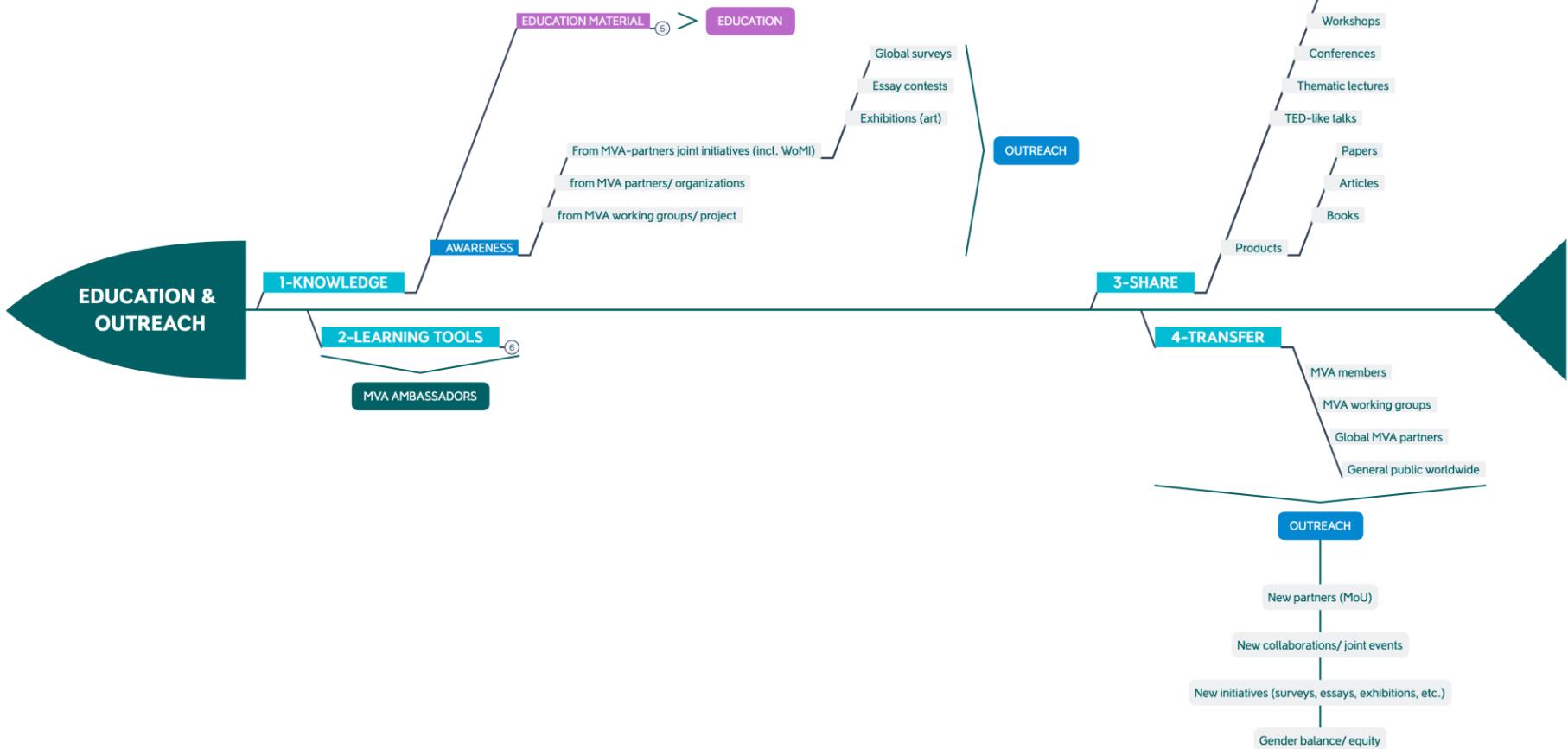


Fig. 5: GLOBAL OUTREACH

WOMEN OF THE MOON INITIATIVE (WOMI)

The Moon Village Association (MVA) has launched in 2019 an initiative to promote the international participation of women toward achieving a sustainable long-term presence on the Moon and the advent of creating a Moon Village. The goals of this initiative are to inspire young generations of women to pursue professional careers in space and related lunar exploration fields. Creating a balanced community that aspires to create a Moon Village is instrumental to a new generation of equality in the fields of STEM/STEAM. Women will be encouraged to participate in lunar exploration missions and activities that include a wide range of positions, from entry level to project leadership roles and aspiring astronauts with the goal of becoming the first women on the Moon.



A brochure for the Women on the Moon initiative. The title "Women on the Moon" is prominently displayed in large, white, serif capital letters. Below the title, there is a brief description of the initiative's purpose: "The Moon Village Association is launching an initiative to promote the international participation of women toward achieving a sustainable long-term presence on the Moon and the advent of creating a Moon Village." Further down, another description states: "The goal of this initiative is to inspire young generations of women to pursue professional careers in STEAM and in related lunar exploration fields." At the bottom of the brochure, there is a call to action: "Inspire by using the Moon Village as a driving vision." followed by the website address "https://moonvillageassociation.org". To the right of the text, there is a photograph of a young girl looking up at the Moon. Overlaid on the photo are two circular logos: one for the "MOON VILLAGE ASSOCIATION" and another for "Women on the Moon".

Fig. 6: Women on the Moon brochure

MVA has proposed to support MVA female members to contribute to Education and Outreach:

- TED-like talks offered by MVA female members and cooperating partners on relevant subjects,
- Workshops to share practical knowledge of the expertise needed to build a Moon Village,
- Thematic lectures by inspirational leaders to cover specific topics in space exploration,
- Creative (e.g. art) competitions and campaigns for capturing ideas among generations of women and building a platform for sharing those visions, e.g.:
 - Competitions including essay contests for young and adult women interested in the Moon Village
 - Campaigns to promote the inclusion of women in Moon related activities, such a women centered exhibition of portraits,
- Organizing engagement in schools to promote and inspire the role of science and technology fields for women pursuing education in STEM/STEAM by using the Moon Village as a driving vision,
- Seeking partnerships to drive more effective cooperation between space agencies, governments, public and private sector, NGOs and academia. Partners will combine their efforts to achieve shared goals.

EDUCATION & OUTREACH & WoMI ROADMAP

This chapter proposes a guideline for the working group in order to implement the strategic priorities for 2020-2021, in coordination with the Education & Global Outreach co-chairs, including:

- The detailed activities,
- Their repartition between Education & Outreach.

1. Contribution to KNOWLEDGE

Activity/ Scope	EDUCATION	OUTREACH
A) EDUCATIONAL MATERIAL: <ul style="list-style-type: none">• Collect existing learning tools from MVA partners/ organisations/ collaborators/projects• Create complementary education material based on science-on-the-field experiments (e.g. collaboration with ESA/ESTEC EuroMoonMars missions)		X
B) AWARENESS: <ul style="list-style-type: none">• Define & Implement joint initiatives with MVA partners/ collaborators/projects, e.g.:<ul style="list-style-type: none">◦ global surveys◦ essay contests◦ exhibition (art)• Collect raw material, analyse them and convert the main outcomes as knowledge database.		X

A) EDUCATIONAL MATERIAL:

Proposal for 2020-2021:
Activity to be initiated.

B) AWARENESS:

A starting point for promoting awareness is organising creative campaigns for capturing ideas among generations and build a platform for sharing these visions.

The following proposals are :

- Essay contests
- Artistic exhibitions
- Global surveys.

Essay contest (WoMI):

Through the entire year 2018 and 2019, ILOA (International Lunar Observatory Association)/MVA run the essay contest titled '*First Women on the Moon*' for young and adult women interested in the Moon Village, called "Women on the Moon", in collaboration with the Astronaut Soyeon Yi.

Contestants were asked to contribute 200-word submissions to describe why they would like to be the First Woman or one of the First Women on the Moon, and the significance of landing the First Women on the Moon.

<https://galaxyforum.org/1st-women-on-the-moon-2019-essay-contest-rules-and-guidelines/>



Fig. 7: First Women on the Moon

Over these two years, 146 essays have been received, by ladies from 18 to 49 years old, from 30 nationalities.

A panel of judges from ILOA and MVA has selected the Contest Winner based on the merit of the written essay. Grand Prize Winners are :

- Wendy Crumrine, California USA (2018)
- Pavithra Manghaipathy, Abu Dhabi (2019)

<http://iloa.org/1stWomenontheMoon.html>

The Winners of both the 2018 and 2019 competition have been invited to participate at ILOA Galaxy Forum China: Hainan on 11-14 February 2020, and in particular during the 'First Women on the Moon' special lunch-on panel. Due to the COVID-19, it has been postponed to 2021, tentatively 12-15 January.

Proposal for 2020-2021:
Organise new essay contests through 2020-2021.

Artistic exhibition of portraits (WoMI):

This campaign has for objective to promote the inclusion of women in Moon related activities in a woman centered exhibition of portraits: Iconic female figures and young inspirational professionals working in related fields will be selected based on their experience, achievements, and future goals. The MVA will launch a call, in order to collect photographs of iconic women and representatives from a variety of sectors and then will select the photos for the exhibition.

This initiative is inspired from the *Space Girls Space Women* project that has been held a few years ago.



Fig. 8: Space Girls Space Women

Proposal for 2020-2021:

A collaboration has started with *SIPA press*, one of the world's main photo journalism agencies. MVA requirements and specifications have been provided. The Development Plan of *Women and the Moon* has been approved by the MVA board. This collaboration will be pursued through 2020-2021.

Global Surveys about Moon exploration:

Last year (2019), MVA has coordinated the first global survey on the Moon Exploration by MVA in cooperation with World Space Week Association (WSWA):

<https://www.worldspaceweek.org/news/moon-village-association-survey-about-moon-exploration/>

People were able, throughout around 15 questions to test their knowledge on Moon exploration, and provide their aspirations. The survey was made available in different languages and for adults as well as for kids (10-18 years old).



Fig. 9: World Space Week Global Survey

This survey has ended in December 2019, and has shown an engagement of 370 people and 42 nationalities from over the world, split equally between kids and adults, favorable in going back to the Moon.

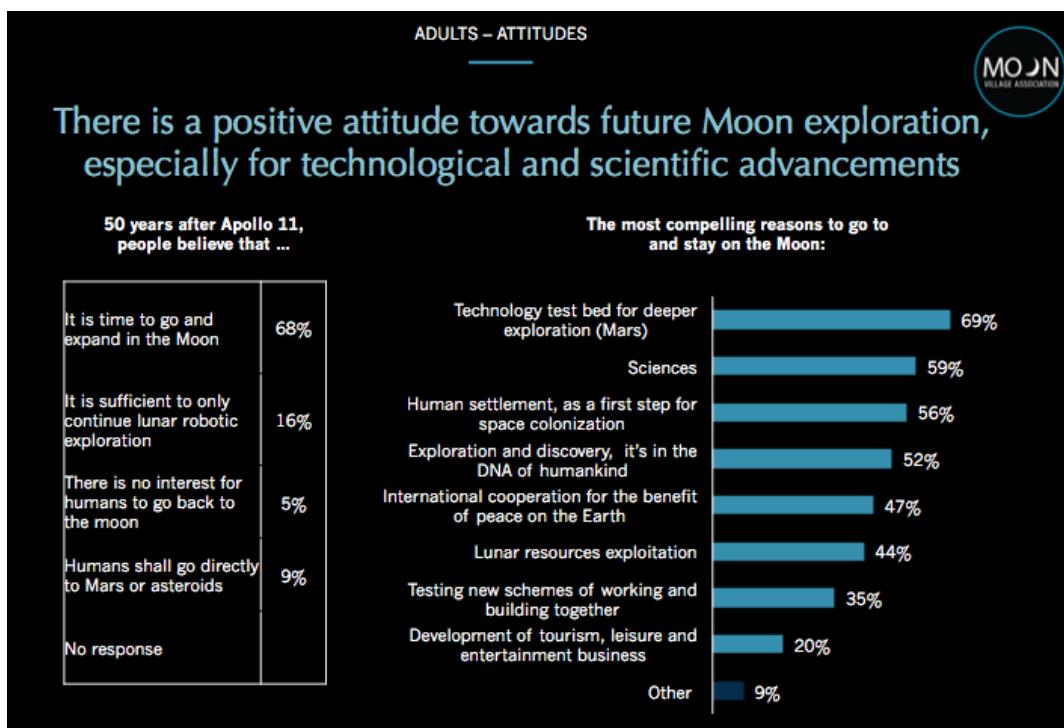


Fig. 10: Example of outcome from Global Survey

Proposal for 2020-2021:

New surveys will be pursued, in cooperation with other organizations, with the objective to engage additional participants and understand specific measures to increase the efficiency of lunar outreach programs.

2. Contribution to LEARNING TOOLS

Activity/ Scope	EDUCATION	OUTREACH
<ul style="list-style-type: none">• Create learning tools that are adequate to foster the learning process, first within MVA, then outside MVA		X

Proposal for 2020-2021:

Activity to be initiated.

3. Contribution to SHARE

Activity/ Scope	EDUCATION	OUTREACH
<ul style="list-style-type: none"> • A) Organise Outreach events around the world, where : <ul style="list-style-type: none"> ◦ MVA ambassadors will attend and share their knowledge about Moon Exploration ◦ In the frame of the MVA annual workshop, organise dedicated Education & Outreach sessions (e.g. poster sessions, students presentations) 		X
<ul style="list-style-type: none"> • B) Share the acquired knowledge acting as MVA ambassadors, with the final objective to bring on-board new MVA ambassadors from all over the world, including: <ul style="list-style-type: none"> ◦ young generations, and ◦ Fellow women of the Moon. 	X	

A) Organise Outreach events:

Typical events to be organised to share knowledge are:

- Annual MVA workshop (in Fall)
- IAC (Moon dedicated sessions)
- COPUOS meeting
- In addition of the events organized by MVA partners like NSS e.g. International Space Development Conference (ISDC) in USA

Proposal for 2020-2021:

Organise new events with initiatives to share knowledge.

B) Sharing knowledge as MVA ambassador:

MVA supports of MVA ambassadors to these events. Share knowledge aims ato foster public engagement and bring on-board new MVA members/ ambassadors, including the young generation and fellow women (WoMI), via e.g.:

- TED-like talks on a Lunar project (e.g. Series of webinar on lunar outreach),
- Inspiring talks
- Thematic lectures (e.g. conferences)
- Hand-on Workshops (e.g. in schools)

Proposal for 2020-2021:

Keep promoting the participation of MVA ambassadors to events.

e.g. Participation of MVA ambassadors for the SGAC event *Our Giant Leap* in 18th of June 2020 (tentative) in Toulouse, France:

- International event, with participation of young professionals passionate by space.
- Inspiring talks, coaching as expert during working sessions.
- Fostering exchanges with MVA women ambassadors for advices and expertise as mentors, research fellows, cross-communication.

4. Contribution to TRANSFER

Activity/ Scope	EDUCATION	OUTREACH
<ul style="list-style-type: none">Transfer and extend this knowledge through the MVA global outreach (members, working groups, partners, public) with the final objective to reach:<ul style="list-style-type: none">New partnerships (MoU)New collaborations/ joint eventsNew initiatives worldwide (surveys, essays, contests, etc.)Foster gender equity/ balance.that will feed awareness as well as the MVA knowledge platform.		X

The current list of MVA partners is provided here:

<https://moonvillageassociation.org/about/partners/>

Early 2020, Space Generation Advisory Council has joined as new partner in the frame of future SGAC events.

A new partnership is generally formalised by the signature of a Memorandum of Understanding (MoU), and aims to support cross-communication of activities, and participation of MVA ambassadors during events/ workshop/ projects.

Proposal for 2020-2021:

New MVA partnerships will be pursued, with discussions already initiated with:

- UNOOSA on their *Space4Women project*
- Space agencies, including ISRO
- Die Astronautin on the creation of lunar modules for students
- Women in Aeronautics and Astronautics (WoAA) for mentoring program during IAC
- Women In Aerospace (WIE) on a shared *international network*.
=> to be formalised with dedicated MoU.

CONCLUSION

One of the key missions of the Moon Village Association has been to foster collaboration for the development of moon explorations projects, engage the public in this adventure, and inspire young generations to pursue professional careers in space and related lunar exploration fields. Keeping this in mind, the **Education & Outreach Working Group (WG)** has been working to ensure that the associated objectives are fulfilled that could help MVA realize its mission.

The Moon Village Association would like to invite you to join in our mission and support the activities of the Education & Outreach Working Group:

<https://moonvillageassociation.org/groups/outreach/>

The various activities under the Education pillar include: collection of existing learning tools from MVA partners/ organisations/ collaborators/projects, creation of learning tools that are adequate to foster the learning process and finally share the knowledge as MVA ambassadors throughout the world.

The various activities under the Outreach pillar include: implementing new joint initiatives with MVA partners/collaborators/organizations, organize events around the world where MVA ambassadors will attend and share their knowledge about Moon exploration, and finally exploring ways to collaborate and form new partnerships with organizations around the world.

Also, we are looking for individuals who could bring in fresh ideas to exciting initiatives such as the Women on the Moon initiative which aims to inspire young generations of women to pursue professional careers in space and related lunar exploration fields.

If you are also willing to share your skills like a video maker, artist, designer, illustrator, you are more than welcome on-board!

These responsibilities also provide an excellent opportunity to individuals to network with like-minded people throughout the world and get a closer look into the future of human exploration of the Moon. It essentially gives you a forum to express yourself and change the trajectory of the space industry.