OAE Proposed Structure and Activity Plan

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Haus der Astronomie

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OAE Proposed Structure

Funding bodies
- Klaus Tschira Fdn.
- Carl Zeiss Fdn.
- Shaw Prize Fdn.

Max Planck Society
- Haus der Astronomie
- Core staff
- Visiting Scientists

OAIE
- OAE Centre
- OAE Node

OAD, OAO + Regions, NOCs

Not included here:
Network of collaborations (C1, wider community)

Steering committee
- sets strategy
- funding
- advice
- liaising

Klaus Tschira Fdn.
Carl Zeiss Fdn.
Shaw Prize Fdn.
National Astronomy Education Coordinators (NAECs)

1st Shaw Prize-IAU Workshop “Astronomy for Education”
OAE Core Staff: Who does what?

Director & Deputy:
- Strategy
- Networking
- Infrastructure talks (ADS…)
- Hiring
- First Events

Coordinator:
- Build network!
- NAECs
- Contacts with OAO, OAD networks

AER Coordinator:
- Start AER-related OAE Reviews
- Research on student interests?
- Big Ideas, Standards, Concept Inventories

...supported by administrative assistant
...supported by HdA staff as advisors, helpers

1st Shaw Prize-IAU Workshop “Astronomy for Education”
Visiting Scientist Program

- Funds for inviting scientists, educators, stakeholders to Haus der Astronomie
- Travel costs, accommodation, stipends (for people not paid by another institution)
- Stays between a few days and a few months possible
- We want to use this program to **get things done**!
- Concomitant visits possible (from collaborations to mini workshops)
- If you have specific ideas, talk to us!
Max Planck Society

- Germany’s largest organisation for basic research
- founded in 1948
- 86 institutes/institutions
- 8 institutes for astronomy/astrophysics
- 18 Nobel prize winners
- Funded by federal and state money
Max Planck Institute for Astronomy

- Main research themes: Galaxies and cosmology, planet and star formation
- Instrumentation (Calar Alto, La Silla/VLT/ELT, LBT, ISO, Herschel, JWST)
- Tasked by MPG with administering Haus der Astronomie
- OAE: Basic administration, IT infrastructure
Haus der Astronomie

- Physical location for OAE
- Offices for core staff and visiting scientists
- Localities for meetings (e.g. as part of visiting scientists program), venue for workshops and smaller conferences with up to 100 participants

- Useful testbed:
  - Student workshops
  - Teacher training
  - Developing resources
OAE Funding: **IAU** and **Shaw Prize Foundation**

- **IAU**
  - OAE: Organisational assistant, travel, web services
  - Comparable support to OAD, OAO
- **Shaw Prize Foundation**
  - Founded by Mr. Run Run Shaw
  - Shaw Prizes $1.2M: Astronomy, Life Sciences, Maths
  - OAE: Annual Shaw Prize-IAU Workshops
OAE Funding: **KTS** and **CZS**

- **Klaus Tschira Foundation**
  - Klaus Tschira = SAP Co-Founder
  - Funds science & outreach
  - OAE: Coordinator position and visiting scientists program

- **Carl Zeiss Foundation**
  - owns Zeiss and Schott
  - Funds science and engineering
  - OAE: AER coordinator position
OAE Governance: **Steering Committee**

- 4 members: Asst. GA, IAU nominee, 2 MPIA nominees
- Three year term, plus provisions for continuity
- Advises OAE management
- Monitors adherence to strategy, inter-office collaboration
- Feedback on:
  - Choice of Shaw Prize-IAU Workshops
  - Topics/locations of Schools for Astronomy Education (SAEs)
  - New OAE Centres and Nodes
OAE Governance: **Reporting and Review**

- Yearly reports to General Secretary for Officer’s Mtg.
- Contributions to Catalyst, newsletters
- External review:
  - every 3 years, in phase with GAs
  - jointly arranged by IAU and MPIA
- Transparency towards stakeholder communities: news items, finished works (e.g. OAE Reviews) published online
- Next GA: OAE meeting (3.5 hours)
National Astronomy Education Coordinators

- NAECs are liaison between OAE and each country’s education community
- NAECs disseminate OAE material
- OAE asks NAECs for nation-specific needs
- Early task: survey of national practices/status quo in astronomy education
- For each country, think about ways for lobbying for more astronomy in curricula – and OAE ways of supporting this.
OAE Centres and OAE Nodes

Given the scale of the tasks we face, we welcome support!

Institutions that are willing to marshal their own resources for the task are invited to become OAE Centres or OAE Nodes (difference in scale).

Centres/Nodes are part of the OAE in name, public-facing, in strategy, in coordination and in reporting

Not mainly regional (in the sense of only being responsible for a limited region), but with an international perspective
OAE Centres and OAE Nodes

- Well-defined tasks/specializations where possible
- Key tasks remain w/OAE, lead for specific concept inventory or OAE Review, can be Centre/Node
- Centres/Nodes are run by experts – OAE will not micromanage, but strategy must be agreed-upon beforehand, and reporting is necessary task
- To start talking about a Centre/Node: See what resources (FTE, funds for travel, website) you can commit, and about possible specializations

→ we will discuss this in the next section!
OAO, OAD and their networks

● Overlap OAE with OAO, OAD: Education is an important aspect of development/outreach

● Keeping each other up to date: OAE joins existing regular OAD/OAO teleconference

● Making use of OAO, OAD networks: NOCs, OAD Regional Offices, OAO-coordinated translator network
OAE Activities

General remarks:

- Today’s talk is about where we want OAE to go
- Related question of “how to get there from here”: **Draft Road Map** talk on Thursday
- Activities related to standards and best practices: **Separate talk this afternoon**
Categories of OAE Activities

- Infrastructure
- Professionalisation
- Networking
- Astronomy in Curricula
- Standards and best practices
Creating infrastructure: **Publications and data base**

Our impression:

**Astronomy education is lagging behind astronomy research regarding findability and publication venues**

- Numerous excellent resources, but often not as widely known as they should be
- Lack of platforms for widely accessible publication (arXiv) and peer-reviewed platforms
- Particular problem (not as relevant for astro research): **languages** (important for reaching teachers)
Infrastructure: **Getting resources out there**

- Role of arXiv in astronomy research: easy, fast, low-threshold, widely-read way of publishing results
- What could play a similar role for astronomy education resources (both AER and teaching resources?)
- arXiv itself?
  - phys.edu-ph exists, but no astro-ph.edu
  - Could be a touchy issue; have tried to initiate contact
- Alternative: zenodo.com, hosted by CERN, hosts materials of all kind. No astro visibility, though.
Infrastructure: Peer-reviewed publication venues

- astroEDU portal for peer-reviewed activities following a specific template – will be supported by OAE (organisational assistance, hosting)
- Ideas floated/plans made within the community for peer-reviewed journals – waiting for specifics
- Wider problem for peer-reviewed journals: review culture. How to create a good astronomy education review culture?
Infrastructure: **How to find things?**

- **Astronomy research:** NASA ADS as near-universal way of searching for specific articles
- Have started talks (thanks to S. Deustua) with ADS about including astronomy education resource database
- Searching by topic: Do we need an agreed-upon list of keywords? (e.g. based on [http://astrothesaurus.org/](http://astrothesaurus.org/)?)
- Additional resource: collecting best-practice examples → Standards & Best practices talk at 17:20
Professionalisation: **Target Groups**

Different target groups:

- **Teachers**: trained educators, but not necessarily familiar with (current) astronomy
- **Astronomers active in education**: excellent astronomy knowledge, but often self-taught/no formal teacher training, and not necessarily up-to-date with Astronomy Education Research (AER)

OAE should have **bridge function**
Professionalisation for Teachers

- Provide resources ("simple astronomy") for astronomy teaching by teachers with little previous training (collaboration with OAD)
- Best-practice resources collection (plus translations!)
- Online Schools for Astronomy Education (SAEs) in English (international) and other languages (regional) as low-threshold introduction (including current developments)
- International and regional SAEs for face-to-face training
- Define community standards for those resources/trainings
Professionalisation for **astronomy educators**

This includes both teachers and astronomers active in astronomy education

Help educators keep up with:

- AER developments
- modern teaching methods
- state-of-the-art evaluation

**OAE Reviews** as compact, minimally time-consuming resources for getting up to speed
OAE Reviews topics:

General/methodology will include:

● How to evaluate resources and activity
● Accessibility and inclusion in astronomy education
● Online formats for astronomy education
● Mix of best-practice reports and AER reviews

More specific content topics:

● Remote observing
● Astronomy education with authentic data (e.g. Archives)
● Best practices/resources reviews for common topics: Cosmology, planetary atmospheres (climate change), ...
Collaborative actions with the NAECs

- OAE Review on int’l astronomy education practices
- ...including analysis of each nation’s specific needs
- Nation-specific plans: Where would additional astronomy in curricula improve teaching?
- Lobbying efforts: NAECs and national community must take the lead; OAE and IAU Exec support
- Planning national community actions: Regional SAEs (online or offline)? Hosting a Shaw Prize-IAU workshop?
Networking within the astronomy ed. community

- Use OAE Reviews and online-SAE to share experiences/best-practices
- Interaction at General Assemblies, OAE session
- How should we keep stakeholders informed? Mailing list? Newsletter?
- Shaw Prize-IAU Workshops to advance specific OAE tasks and topics

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What else?

Save for the usual disclaimers – limited resources! – what else should/could OAE do or support?

Let’s talk!