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WHO ARE STARGAZERS?

A discourse analysis of the target group
in a Japanese stargazing guide book

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Abstract

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This thesis examines the intended target group of a Japanese stargazing guide book through a discourse analysis of the translations of relevant segments in the material. The aim of the study has been to determine who the reader and the participants are, based on how they are described in the book. To do this, related sentences in the source material have been extracted and translated to English with a focus on the meaning of the words connected to the roles in the target group. The translated segments have been analysed through discourse theory, and categorized according to which master signifiers they are describing. The results show that the book is intended for a reader who can be identified as an authority, is already interested in astronomy, and will be leading participants, or followers, in stargazing activities. The authority and the followers have several different roles, or subject positions, to choose among, which deviates from one another. The heavy focus on the group of participants, and certain attributes that are connected to the authority, reflects a collectivistic mind-set that is being relayed through the text.

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1 Introduction

My interest in space technology and astronomy began with books. I remember the colourful pictures and the stories about the ground breaking discoveries of unknown celestial objects and new ways to explore the universe. These led me to picture myself as one of all the phenomenal astronomers and astronauts, and with that dream the step to an education in science wasn't far. During just a couple of decades the speed with which new technologies and discoveries are made has exponentially increased, the telescopes get bigger and better, we get to know more and more about the universe and ourselves, and the International Space Station (ISS) has been manned with astronauts from all over the world continuously for 15 years, carrying out experiments on behalf of scientists on earth.

When I went to Japan on a university exchange, I did not only choose the country because of my interest in Japanese, but also because of all the space-related opportunities that I associate Japan with. Internationally, the Japan Aerospace Exploration Agency (JAXA) is famous for being one of the five big space agencies cooperating in the program that run the ISS, together with Europe's ESA, Russia's Roscosmos, Canada's CSA, and NASA in the USA (NASA 2015). In addition, there are many big observatories in the country, as well as advanced research institutes with collaborations all across the world. Japan has a big momentum in these areas, and there are many books about space and astronomy on the market today with the intention to encourage people to get involved and learn more.

But who are the people that the authors behind these books want to encourage? The conscious, or unconscious, target group of the author(s) shape the language in which a book is written, and can reveal the intentions behind it. Because of my own interest in these subjects, I am curious about whether I fit or not in the roles given by the authorities behind these materials; I want to know what the target group looks like from the text of an astronomy book that is relevant today.

1.1 Aim and Research Question

The aim of this study is to determine the intended target group in the Japanese book “*Show me the universe – the new stargazing guidebook*”, and in which social group constellations the participants are expected to carry out the stargazing parties. Some interesting details to examine are whether or not the material describes the person reading the book as having a different role than the person participating in the activities, and if everyone can identify themselves in the language, or if certain groups are excluded.

The research questions in this thesis are as follows:

- Who is/are the intended reader(s)?
- Who is/are the intended participant(s)?
- Is the book aimed at a specific group of people, even though it claims to be aimed towards everyone with an interest?

1.2 Material

The source material in this thesis is the book 天体観望ガイドブック 新版 宇宙をみせて *Tentaikanbō gaidobukku shinpan uchū wo misete (Show me the universe – the new stargazing guidebook)*, written by Takao Mizino, Hidehiko Agata, and edited by 天文教育普及研究会- the Japanese Society for Education and Popularization of Astronomy (Tenkyo) and issued in 2013. The intended purpose of this book is to instruct the reader on how to have a stargazing get-together, how to use the necessary technology, and to teach the basic astronomy behind the observations.

The Tenkyo research society is affiliated with the National Astronomical Observatory of Japan(NAOJ), which is the national centre of astronomical research in Japan, an Inter-University Research Institute that aims to encourage the development of astronomy, astrophysics and related fields of science(NAOJ 2015). NAOJ is one of five Inter-University Research Institutes in the National Institute of Natural Sciences(NINS), an organization that provides a centre for collaboration among researchers across Japan(Sato 2014).

The book has three major parts with chapters and sub-chapters. The first part informs the reader about everything that can be required to hold a star-watching party, and also gives lots of example parties with different participant configuration. The second part is a collection of different astronomical objects' occurrences that can be observed at a party. The third and last part of the book contains lists of useful internet sites, planetariums, sample letters, and so forth.

1.3 Previous Research

Among the Japanese projects carried out in Japan or abroad in collaboration with other countries, there are many that focus a substantial part of their means on relaying their activities to the public. In the paragraphs below, three projects' different approaches to this are summarized. Also, a comparative study of school textbooks in Japan and the USA is presented because of its relevance to how the culture shapes the roles in stories, and the collectivistic mindset often found in Japanese works.

1.3.1 Projects

NAOJ has been working on projects for promoting astronomy in development countries in the Asia-Pacific region through collaborations with the Office of International Relations in Japan, and the East Asia Core Observatories Association (EACOA). Children, students, and educators are participating in the astronomy progress, and the Japanese Government has continuously been supporting the developing countries with equipment. Especially the project “You are Galileo!”, an astronomy education programme for children which has been very successful and celebrated, has been helping children to attempt careers in engineering and science. This project is boosting children’s interest by using home-made telescopes, and has been backed by the Japanese National Committee for UNESCO (Sekiguchi & Yoshida 2012).

ALMA, a radio telescope in the Chilean Andes, is a product of an international partnership with East Asia, Europe, and North America, together with the Republic of Chile. The communication of ALMA to the public in Japan has required a solid strategy due to the distance to the telescope and the lack of knowledge regarding radio astronomy. The approach is to deal with these difficulties in the outreach through highlighting the human side of ALMA; questions that even people with no interest in astronomy in general can connect with, such as how the life at the observatory is, or what the astronomers want to be able to discover with this technology. Further, the tactic is to show scientific results and also tell the audience about “the cool universe”. The activities that are carried out in Japan includes science cafés and lectures, and along with these, lots of online tools are used; such as Twitter, Facebook, web sites and a mail magazine. The human side of ALMA is displayed through photo reports, articles written by staff members, and video interviews. It has been noted that a lot of the tweets with visuals of the night sky have been very popular, thus showing the public's interest in the subject, as well as the achievements of the outreach (Hiramatsu 2012).

The TENPLA project, which is independent from any organisations or institutions, was started in 2003 with the sole purpose of enjoying astronomy together with others. It is the largest network in Japan with people interested in sharing this experience, with over 250 members of all ages; from mothers to students, which is the largest group. In the beginning the meetings took place at planetariums and such, but it was soon discovered that these places did not attract the larger part of the public because of the lack of particular interest in astronomy. Instead, the gatherings were changed to lectures, stargazing parties, and science cafés, that had bigger potential to engage more people. Another action was to start producing goods with astronomical themes, such as toilet paper with a tale of the life of a star printed on each sections. In order to give everyone an equal chance to participate in the activities, a focus on

especially those with impediments was established; mothers with infants that feel uncomfortable bringing their child to activities, hospitalized patients, and children in lower grades in school that are thought to be too young for more challenging astronomy, etc. The activities that are organized by people engaged in TENPLA seek to be challenging and unique; for example, when planning stargazing parties, interesting and beautiful locations are preferred. When holding science cafés, instead of only researchers the public are able to talk to graduate students and feel less shy during the interaction. Towards younger participants the latest news is delivered in an easier language, so that everyone can feel included (Takanashi & Hiramatsu 2009).

1.3.2. Characteristics of Japanese Textbooks

In the publication *Cultural Narratives of Individualism and Collectivism: a Content Analysis of Textbook Stories in the United States and Japan*, Toshie Imada examines the differences in story telling in American and Japanese textbooks through a content analysis. When developing important cultural values and tendencies, these stories play a big role for the students reading them. Through the education system children learn how to be a proper member of society, and in Japan all school textbooks must be recognized by the Ministry of Science and Education. The findings show that where the American stories focus on individualism, the Japanese counterparts highlights collectivism. A theme throughout the pictures in Japanese textbooks was that more than two persons were showed, to promote group thinking. The stories particularity articulated friendship and affection, sympathy, a sense of belonging in a group, helpfulness, and making others happy (Imada 2012).

2 Theory

To be able to interpret the social constructs and the intended reader in the source material, this thesis will use discourse theory as its theoretical framework, and in particular Ernesto Laclau and Chantal Mouffe's theories as presented in the book *Discourse Analysis as Theory and Method* (2002) by Marianne Jørgensen and Louise Phillips.

2.1 Discourse Analysis

The vague term *discourse* is seldom defined, but generally thought of to be the patterns by which language is structured in different domains of our social life, or as “*a particular way of talking about and understanding the world (or an aspect of the world)*.” (Jørgensen & Phillips 2002:1, italic in original text). As the name implies, discourse analysis is the analysis of these patterns. However, just

like there is no certain definition of what a discourse is, there is not just one approach to analyse it (Jørgenson & Phillips 2002:1).

There are some key premises based on social constructionism, which is the umbrella term for theories regarding culture and society, that most approaches share; the knowledge that we have of our world is not to be treated as the reflection of objective truth, but rather as the product of our attempt to categorize it within our discourses. Also, our identities and our understanding of the world is dependent on culture and history; they can change with time and could have been different. This is because the knowledge which we construct is a product of our social life, created during our interactions. Consequently, the actions within a certain world-view is an effect of that particular social understanding (Jørgensen & Phillips 2002:4-6).

It is through discourse that we can acquire meanings and representations of reality, but language is also a process that simultaneously upholds and changes our social reality. With our words, or *signs*, we connect sounds with meanings, yet the meanings of a sign are decided by its reference to other signs. For example, the word “student” gets its definition from its relationship with the words “teacher”, “school”, “study”, etc., which indicates an arbitrary connection between language and reality (Jørgensen & Phillips 2002:9-10). Meanings of signs alternate depending on the discourse, and because of that, an analysis should also regard the context of the sign (Jørgensen & Phillips 2002:12).

In Laclau and Mouffe's Discourse Theory, as presented by Jørgensen and Phillips, the fixation of meanings to signs is a constant struggle and something that we in the society strive for.

The aim of discourse analysis is to map out the processes in which we struggle about the way in which the meaning of signs is to be fixed, and the processes by which some fixations of meaning become so conventionalised that we think of them as natural (2002:25-26).

In a discourse, signs are structured around certain *nodal points* and they “acquire their meaning from their relationship to the nodal point.” (Jørgensen & Phillips 2002:26).

2.1.1 The Subject

In a discourse there are subject positions which people get *interpellated*, or placed, in. There are certain expectations on how to behave as a subject, it is a role created within the discourse. However, a person is never only occupying one subject position, and is as a subject *fragmented*, ascribed to many different positions by many discourses. For example, a person can have the position “student” in school, “child” in a family, and “friend” in a different environment. All these subject positions come with their

distinctive expectations, and the shift from one discourse to another is often not noticed by the subject. However, if the person is simultaneously interpellated to different positions by conflicting discourses, then the subject is *overdetermined* and has the opportunity to choose how to identify itself (Jørgensen & Phillips 2002:41).

The nodal points of identity, or *master signifiers*, are signs that people acquire their identity from. Through *chains of equivalence* that link together signifiers to a master signifier, an identity is defined by what it diverges from and what it equals. For instance, in some discourses the master signifier “man” is linked to signifiers such as “strength”, “logic”, “silent”, etc.(Jørgensen & Phillips 2002:42-43).

The discourse thus provides behavioural instructions to people who identify with man [...] which they have to follow in order to be regarded as a (real) man [...](Jørgensen & Phillips 2002:43).

In this case, the emergence of a more modern “man” with signs such as “sensitive” and other signifiers attached, which is contradictory in relation to the first master signifier, creates a struggle for domination between the discourses (Jørgensen & Phillips 2002:47).

2.1.2 Antagonism and Hegemony

According to Laclau and Mouffe's discourse theory, discourses are not fixed entities, and are always changing as a result of interactions, or *discursive struggles*, with other discourses. The goal for these are to achieve *hegemony*, to have the their own meanings of language fixed (Jørgensen & Phillips 2002:6-7).

When a subject's different identities contradict each other, a *social antagonism* arises. This social antagonism can be terminated by a *hegemonic intervention* process, which “by means of force reconstitutes unambiguity” ((Laclau 1993b: 282f.), see Jørgensen & Phillips 2002:48). A successful hegemonic intervention results in one dominating discourse and the other undermined, and the conflict is solved.

2.1.3 The Role of the Analyst and the Relevance of Discourse Theory

When doing a discourse analysis, the goal is not to reveal the truth beyond the discourse, which cannot be reached, but to find the patterns that the discourse is representing reality with and how these affect society. As an analyst it is often hard to distance oneself from the target discourse and its common-sense understandings, so there is a risk to miss these important parts of the analysis; the signs in the discourse which meanings are recognized as truth (Jørgensen & Phillips 2002:21).

Discourse theory is a powerful tool in studying details in texts and to produce a picture of known or unknown patterns in the discourse that it is used in, and therefore it is a very relevant theory to apply in this study.

3 Method

The thesis' research questions have been examined through a discourse analysis applied on relevant segments in the book. The segments have been translated for this purpose, and analysed accordingly.

3.1 Discourse Analysis

In a material, key signifiers such as nodal points and master signifiers can be identified. The nodal points are, broadly speaking, linking signs and creating a discourse, and in the case of this thesis, a stargazing gathering discourse. The master signifiers are on the other hand constructing identities for subjects to be fixed to. A key signifier is a sign that means nothing by itself; it is by the signs linked to it through chains of equivalence that it gets its meaning. In empirical studies the key signifiers are identified and then analysed in their relationship to other signs; how they are organized discursively (Jørgensen & Phillips 2002:50).

The analytical tool that has been used in this thesis is the concept of identity, how the master signifiers are organized to create the subject positions found in the material.

3.2 Translation

In the book *The translator's invisibility: A history of translation*, Lawrence Venuti portrays the translator as an interpreter in the work of converting text from one language to another:

Translation is a process by which the chain of signifiers that constitutes the foreign text is replaced by a chain of signifiers in the translating language which the translator provides on the strength of an interpretation. (Venuti 2008:13)

Because the signifiers' meanings depend on their connections, and these chains can be long and unique, a one-to-one word translation is not constructive in most cases. Instead the interpretation depends on the audience addressed, the cultural situations intended for the text, and the translator's unconscious agenda or prejudice. The most pressing questions when processing content to other languages are *Why* the text is translated, and *How* to do it (Venuti 2008:13-15).

In this thesis the Why and How are directly connected to the research questions presented. When translating the signs, the connected signs are translated as well, which generates a discourse originated from the Japanese language and observed in the English language. Since it is the signs that are important, the sentences have been roughly translated to give an understanding of their meanings, without a focus on the flow of the text. But when translating from Japanese to English, extra awareness has to be practised when interpreting the subject in a sentence because of the tendencies in Japanese to drop this when it is implied. For accuracy when analysing signifiers, both the original text and the rough translation have been considered.

3.3 Implementation

After examining the source material, it is clear that the first part of the book is the relevant part to study to answer the research questions. In that section the reader and the participants are described, directly and indirectly, and therefore this thesis is limited to analysing this part. To be able to apply discourse theory on the material, a detail focus has been used. Sentences that have been regarded as connected to master signifiers and other important signs, have been extracted, listed in an appendix, and translated into English, resulting in a total of 71 sentences. The appendix is structured in order of appearance; the sentences are arranged under their respective chapters and have their page number and order as index. During the text processing, the extracted sentences were categorized into groups in the result based on their common master signifier. These groups did not exist in the material studied, and did only become clear when analysing the selected texts. The sentences have been analysed in full-length so that contextual meanings doesn't disappear.

The pictures and drawings in the book have not been analysed with discourse theory or any other tool, however, they are relevant when compared with the result of the discourse analysis as a complementing observation. The comparison and comments are made in this thesis' discussion section.

4 Results

When the sentences of interest have been extracted from the source material the intention has been to focus on parts of the text that somehow describes what the reader or the participant are, or what they are not. During the extraction, two groups of subject positions, or master signifiers, have crystallized; the *authority*, a group intended for the reader, and the *follower*, which include different types of participants. When processing the sentences included in these two groups, different identities have emerged, and thus the result is categorized by these. Through chains of equivalence from the master

signifiers, the identities have been defined by the material, along with any nodes that may surround them. In the results that follow, the translation in English is included after each displayed sentence in Japanese.

4.1 Authority

In the source material the reader is given the role as an authority with different types of identities to choose from. There are common traits in all the subject positions for this group, which creates a basis for these to expand on.

The authority might be someone fascinated by the night sky, as one can understand from sentences such as

「この本を手にとってみた人の多くは、夜空にきらめく星ぼしの美しさに魅せられたり、日食や彗星を見て、その不思議さに驚いた経験のある人でしょう。」 (Most of those who lay their hands on this book are fascinated by the glittering stars in the night sky, have seen a solar eclipse or a comet, and might have experiences of being surprised at these wonders.) (Mizuno, Agata & Japanese Society for Education and Popularization of Astronomy 2013:1)

and

「夜空に数え切れないほどの星ぼしを見て、その美しさに感動し、また日食や流れ星などを見て、その不思議さに驚いた経験は多くの人が持っていることでしょう。」 (There are surely many people with experiences of being awed by seeing wonders such as the countless stars in the night sky, or by seeing a solar eclipse or a shooting star, and becoming deeply moved by its beauty.) (Mizuno et al. 2013:2).

Even though the word 多く (many) is used in the two sentences and therefore not explicitly counting with the reader, one can with certainty assume that the reader is included because the succeeding sentences consists of insistence to share this with others through an organized stargazing party:

「今度はその感動を多くの人々と分かち合ってみませんか? 」 (Why don't you try and share those impressions with many other people next time?) (Mizuno et al. 2013:1)

and

「その美しさや驚きを他の人にも味わってほしい、伝えたいと考え、他人に天体を見せる場を設ければ、それは天体観望会です。」 (If you also want others to enjoy these

wonders and beauty, if you are thinking that you want to convey this, and if you can create a place to show astronomic objects to other people, then that is an observation party.) (Mizuno et al. 2013:2).

And these other people are specified through sentences such as

「その規模や対象はいろいろで、家族や仲間に見せるものから、学校や生涯学習施設で行うもの、また同好会などが地域で行うものであるでしょう。」 (Its scope and target audience may vary; you can have showings for family and friends, or hold something in school or at a lifelong learning facility, and also at clubs and interest associations etc. in the area.) (Mizuno et al. 2013:2),

which is outlining the different types of participants that the reader, as an authority, could come to interact with.

4.1.1 Leader/Instructor

The master signifier leader or instructor is given conscientious and caring attributes in the sentences directly or indirectly describing them. It takes much planning for a leader to lead a bigger group compared to a small:

「大人数で星見を楽しむためには、1人で見るときよりも気を配ることが多くなります。」 (There are more things to pay attention to in order for a large group of people to enjoy star watching, compared to one.) (Mizuno et al. 2013:4).

It is also this person's task to inform the participants regarding circumstances surrounding the gathering, such as measures against cold weather in the sentence

「参加者には、『普段よりも一枚多く着込む』ように知らせておきましょう。」 (Let's inform the participants that they should "cover up one more layer than usual".) (Mizuno et al. 2013:5).

In a summarizing sentence, the gist of what an instructor's ambition should be, is explained as:

「指導者は、観望者が安全に、確実に天体をみられるように心がけます。」 (The aim for the instructor is that the observers safely and reliably are able to watch the astronomical objects.) (Mizuno et al. 2013:10),

and this subject position is understood as a sort of guardian that takes care of the ground work to keep things smooth and effortless during the event.

4.1.2 Teacher

In the text, sentences such as

「冬は暗くなるのが早いので（17時~18時）、『生徒の集まりやすさ』の点からいえば学校で観望会を開くにはよい時期かもしれません。」(Since it gets dark early during winter (5 pm to 6 pm), it might be a good time to have an observation party at school in regards to "the ease of gathering students".) (Mizuno et al. 2013:4),

and

「開始時刻をあまり早くに設定してしまうと、参加者が集合できないので注意しましょう。」(If the time is set too early the participants can't come, so be careful.) (ibid.),

conveys advisement to a person that could identify as a teacher and is planning to involve students in stargazing. And because students often are under-age, and these activities often are held during evenings, proper handling is necessary:

「募集方法は、参加者が児童・生徒の場合には、保護者の参加承諾書を提出してもらいます。」(If the participants are children or students, as the recruitment method, have them submit a consent form for participation from their guardian.) (Mizuno et al. 2013:16).

So sentences concerning the subject position teacher have detailed information on what to consider regarding interaction with students such as the location, the time, and to be mindful of them actually being minors.

The authors acknowledge the stress of taking care of these kinds of group in the sentence:

「はじめて観望会を開催しようとしているみなさんにとっては、夜間自分1人で児童・生徒を掌握できるかどうかという不安が大きいと思います。」(We think that all of you holding an observation party for the first time feel considerable anxiety regarding whether or not you are able to handle children or students alone at night.) (Mizuno et al. 2013:12),

and actions to make this easier is presented in the next part. Here the premise is to collaborate with the students in the astronomy club at school and to have them help with the lectures and demonstrations, which will have a positive result:

「人に教えることによって部員のレベルや意識も向上するので一石二鳥です。」
(Since members' level and awareness rises when teaching people, you kill two bird with one stone.) (ibid.).

This openness to receive assistance is further elevated through an example in an excerpt from one of the authors' own experiences:

「天文は専門外の筆者ですが、授業をするにあって実際の星を見せることの必要性を感じ、観望会を開催した経験のある先輩のアドバイスを受けて観望会を実施することができました。」 (Although the author's area of expertise didn't include astronomy, they felt that it was necessary to show real stars in class, and it was possible to carry out an observation party when taking advice from a senior that had experience from holding such.) (Mizuno et al. 2013:20).

4.1.3 Parent

The subject position parent is painted as a more relaxed authority compared to the leader or the teacher, and in this case there is no need to organize a star-watching party for the participants, that is, the parent's children. Instead, a more spontaneous take on presenting space to the child is described in sentences such as:

「観望会などという大袈裟なことではなくても、夜道を歩いているだけで自然とふれあうことができるのです。」 (One doesn't have to join exaggerated events such as observation parties, it is also possible to interact with nature simply by walking down the street at night.) (Mizuno et al. 2013:9)

and

「自分の子どもと星を見るというのは、夜の散歩をしながら星座を探したり、旅行中に美しい星空に出会ったりと気まぐれなものです。」 (To look at stars with your child is something you do on a whim; searching for a constellation during the night stroll, or encounter the beautiful starry sky during a trip.) (Mizuno et al. 2013:40)

However, consideration is still important, especially towards younger children. For example,

「自然の変化に興味を振り向けるような問いかけをしていけば、自然の観察に導いていくことができるでしょう。」 (If you keep asking questions that direct their interest towards the changes in nature, you can guide them in their observation of it.) (Mizuno et al. 2013:9),

is indirectly encouraging the parent to be attentive to the child's comments about the world around it, which is also made clear in the next sentence:

「大人のほうで、子どものことばに対する感受性を持っていることが必要です。」

(As an adult, it is necessary to be receptive to children's words.) (ibid.).

So once again the importance of being conscious, as an authority, of the participant(s), is emphasised, as with the preceding master signifiers in this group of authorities.

4.2 Follower

In search of the identifying nodes of the participants, a pattern can be seen; the texts in the book never addresses this role directly, and therefore this group of subject positions can be seen as followers to the authority. The master signifiers in the group follower are categorized as follows; child, student, and other. The heading student is divided into four parts for the different kinds that were found in the source material, and these are elementary school, junior high school, high school, and female student.

4.2.1 Child

When it comes to infant followers, the authors explain that these are actually not unfit for stargazing activities. Contrary to what some people think, even small children are observant to their surroundings:

「『小さな子どもに天体観望なんて』という人もいるかもしれませんが、言葉がでるようになってくると『おひさま』『おつきさま』『おほしさま』などは、身近な対象となります。」 (There might be people that say "children are too small for stargazing!", but as they start to speak, words such as "Mr/Ms sun", "Mr/Ms moon", and "Mr/Ms star" will become familiar subjects.) (Mizuno et al. 2013:9).

So it is pointed out that as soon as the child's speaking abilities and vocabulary starts to be sufficient enough to describe basic observations, it should be possible to talk about the sky, as in the sentence:

「2歳くらいでも、月をさして『あっ！おつきさまがいる』などということができるようになる。」 (Even a two-year-old will be able to point to the moon and say things like "Ah! Mr/Ms moon is here".) (ibid.).

Attributes connected to the child are somewhat specific, for example in the sentence:

「子どもは望遠鏡が大好きです。」 (Children love telescopes.) (Mizuno et al. 2013:9), where all children are connected to love for the act of using the tool to watch the sky.

They are also sensitive:

「『まんまるなおつきさまだね』とか『おひさまがいなくなったら、くらくったね』など、子どもは自然の変化に意外に敏感です。」 (A child is surprisingly sensitive to nature, and can say "Mr/Ms moon is perfectly round, don't you think?" or "It surely would get dark if the sun disappeared" etc.) (ibid.),

and

「大人のほうで、子どものことばに対する感受性を持っていることが必要です。」
(As an adult, it is necessary to be receptive to children's words.) (ibid.).

The last sentence is describing a need from the child's part, but it is also, as seen in section 4.1.3, a requirement of the parent to be more conscious when interacting with this child.

4.2.2. Student

Most extracted sentences are student centred, and there is detailed information about these positions and how to interact with these as an authority.

4.2.2.1 Elementary School Student

In the sentence:

「小学生の特徴は、目で見たもの、耳で聞いたものを素直に取り入れます。」 (A characteristic of elementary school students is that they obediently take in the things they see and hear.) (Mizuno et al. 2013:9),

a general attitude of this role is set. Yet even though this would mean a positive openness to lectures, the next couple of sentences focuses on another, problematic, aspect of teaching to this subject position.

The elementary school students have different ways of understanding the same seen object:

「同じものを見ても、感じ方や発想するものが千差万別です。」 (Even if they see the same thing, their perspectives and ways of thinking are extremely varied.) (ibid.).

They perceive the same read text differently:

「同じ説明をしても、同じ読物を読んでも解釈の仕方が一人一人違います。」 (Even if they get the same explanation, or get to read the same text, the way of interpreting is different from person to person.) (ibid.),

as well as spoken instructions:

「ある意図で語りかけても、話し手の考えとおりには伝わらないことを前提にしておかなければなりません。」 (Even if a person speaks with a certain intention, one must assume that the speaker's way of thinking is not transmitted to the audience.) (ibid.).

The students are not yet shaped to perceive things the same common way, but will be in the school years to come.

Another matter is the lacking ability to understand astronomical movement in three dimensions:

「太陽の動きや月の満ち欠けなどは、視点をいろいろな場所に立体的に移動すること、加えてそれが動くことの難しさから、たいへん扱いにくいものとなっています。」 (Because of the difficulty of moving the viewpoint in three dimensions regarding the sun's movement or the moon's phases etc., movement of things becomes a very hard thing to handle.) (Mizuno et al. 2013:9).

4.2.2.2 Junior High School Student

A student in junior high school is in-between being a primary school and a high school student, with an openness to the material taught in the beginning, and at the end they have achieved a more analytical competence. This is explained in a couple of sentences where the focus is on suitable school project themes:

「中学1年生では小学生的な頭の柔らかさを失っていませんし、中学3年生では高校生的な論理力や解析力を次第に身につけてきていますから、対象となる年次によってテーマを選ぶ工夫ができます。」 (Because junior high school 1st year students haven't lost the open-mindedness from elementary school, and 3rd year students gradually have learned analytic proficiency and the logic ability of a high school student, one can come up with a theme to choose from depending on the annual subjects.) (Mizuno et al. 2013:9),

and also in the sentence:

「中3くらいになると社会的な問題についても興味を持つ生徒が出てきますから、論理構成の複雑なテーマでもついてくるでしょう。」 (Since students around 3rd year start to have an interest in social issues, there are also themes with complex logical layouts to follow.) (Mizuno et al. 2013:10).

Regarding observation activities,

「星さえ見えれば生徒には好評です。」 (Even if you only can see stars, it is popular for students.) (Mizuno et al. 2013:21),

which points at the joyfulness for the students of holding these. And the activities are favourably used as inspirations for further studies:

「1回の観察で多くのことを理解できるとは思えませんが、これから自分で観察してみようとか、考えてみようといった動機づけになるでしょう。」 (We don't think that you can understand many things at the first observation, but it might become an incentive to reflect and try to observe by yourself.) (Mizuno et al. 2013:21).

4.2.2.3 High School Student

They are like adults, but minors:

「高校生では、一応大人と同じように接することができる年代ですが、未成年ですから終夜観測などは一定の制限があります。」 (Although one can interact with high school students more or less as adults, there are certain restrictions when it comes to all night observations etc. because they are minors.) (Mizuno et al. 2013:10),

they are mostly knowledgeable, but sometimes hold illogical beliefs:

「科学に関して非常に詳しい知識を持っている生徒がいる反面、星占いや宇宙人などを適当に信じて選ぶような傾向も持っています。」 (While there are students who have a very detailed knowledge of science, they have a tendency to choose to irresponsibly believe in horoscopes, aliens, and so on.) (ibid.).

The subject position high school student is in a transit phase in how they are perceived; inexperienced and bordering adulthood, not a child nor an adult. And with guidance this student can work autonomously:

「また、あるテーマと方向性を示してあげれば、自主的に活動することもできるようになります。」 (Also, if you give a certain theme and direction, they can work independently.) (ibid.).

4.2.2.4 Female Student

Special concern has to be taken when it comes to female students, with an unspecified age. According to the sentence:

「特に女子生徒は、予定時刻になったら親に迎えにきてもらうなど、安心して参加できるような配慮をしましょう。」 (Let's have consideration especially with female students, so that parents can pick them up at the designated time, in order to let students participate with ease.) (Mizuno et al. 2013:13),

they are uneasy about participating without their parent(s) being able to pick them up, and because this sentence highlights only females, the possible conclusion drawn is that this is not the case for male students.

4.2.3 Other

This category includes those that are not tied to the other subject positions already presented, and because the aforementioned already covers infant to youth, these are presumed to be adult participants. In some sentences they are called ordinary participants, e.g.:

「このためよく使われる『子ども天体教室』、『親子で星を見る会』といった講座名は、一般の参加者が気後れして参加しづらいというデメリットもあります。」 (Because of this the much used course names like "children's astronomical classroom" or "parent and child star watching meeting", have the disadvantage of making the average participant nervous about participating.) (Mizuno et al. 2013:15),

and in this example they are assumed to be concerned about engaging in activities meant for younger participants and their parents.

The visitors at stargazing activities, held by planetariums and such, are already enthusiastic regarding these, according to the sentence:

「そうした人々の多くは、日頃から天文分野に関心を持っていたり、アウトドアでの体験に興味があったり、積極的に星空との出会いを求めて楽しんでいることでしょう。」 (Many of these people are normally interested in the astronomy field, outdoor experiences, and are actively seeking and enjoying starry sky meetings.) (Mizuno et al. 2013:38).

But to others that have not yet been to such, it can be a hard thing to get the initial information about:

「一方で、大多数の人々にとって、そのような施設や機会の存在は、わざわざ探そうとする特別の理由が訪れなければ知り得ないもの、求める動機の及び得ないものなのではないでしょうか。」 (On the other hand, to the great majority, when it comes to the existence of institutions or opportunities like that, if no special reasons appear to expressly

search for these, then people are unable to reach for the incentive to search for them and don't acquire the knowledge about them.) (Mizuno et al. 2013:38).

5 Discussion

In this section the result is summarised and analysed, and compared to pictures from the material. The pictures are also related to parts of the previous research, as this adds to the findings. The different goals of the projects presented in previous research and the examined book, are commented upon.

When examining the source material, and its stargazing gathering discourse, two groups of subject positions were found; the authority and the follower. Each of the two groups comes with behavioural instructions for the people who identify themselves with the different master signifiers.

In the group with the different authorities, all of the subject positions had some shared attributes. An important common signifier was the interest in astronomy, implied that this is something established since before reading the book; that the person is to pick up this book because of this interest. Another point is the organizational role that this type of subject position will have in the activities that is the goal of the book, and to hold a star-watching party is something that is emphasised. The master signifiers Leader/Instructor, Teacher, and Parent share these common traits, but deviates from other ones. The Leader/Instructor is connected with signs such as planning, ground work, detail consideration, and the task to inform participants. The aim for this subject position is to make it possible for the followers be able to participate in a safe and reliable way, but which type of follower that connects to this role is uncertain, and it seems like there is a possible general connection to them all. In contrast, the position Teacher deals only with Students, and have the same relationship with these as during ordinary school; in the role of a guardian. The Teacher is insisted to collaborate with others more knowledgeable, such as students from astronomy clubs or seniors among the other teachers, because of the stressful situations during astronomy activities that are due to leading a big group minors at the same time. Therefore, one of the signs is to be open to assistance from others. The most relaxed master signifier is the Parent, whom is only responsible for the follower Child, implied their own child. The focus is on sensitivity for the child's progress language wise, and to introduce this type of follower to the night sky when they are ready.

The group with followers is always described in third person, therefore the book is making the assumption that no one of these will be the reader. A follower has a passive role in that they will never initiate a gathering or hold it. The Child is attributed with a positivity towards looking at stars, and is

also surprisingly observant to its surroundings. The image of that subject position is quite simple, compared with the Student, which is the biggest component in followers. Functioning more as a subgroup of different types of students, the Student is divided into four subject positions; primary school student, junior high student, high school student, and female student. The primary school student has the positive sign obedient connected to them, however they are not consistent with how to interpret information and have a hard time grasping complicated concepts. The junior high school student has a mix of signs depending on which school year they are in. Ranging from an inability to grasp concepts and a naivety regarding information, to newly discovered analytical tools and a greater interest. The high school student is on the other hand described as almost an adult; still a minor, still not trustworthy in regards to having healthy criticism to information, but this master signifier is seen as reliable with a bit of guidance. The last student subject position can be interpreted more as a key signifier to an undefined type of Student because of the other chained signs that follows, than a separate student type. The female student has a strong connection to their parent(s), and from that insinuation it can be concluded that this is in contrast to a male student. A female student becomes nervous if their parent(s) can't pick them up after an event, this could be because of some attitude that the parent(s) or society have that stems from the student being female in the first place; such as a parent wanting to protect the person more. The last subject position in the group of followers is Other, a master signifier that is presumably an adult. The person in this role is hesitant to participate in events where only the other subject positions are explicitly invited, not being able to identify with these.

These are the ways in which the concepts of identities are organized in the source material, with definitions of master signifiers' connected signs but, also with the unspoken exclusions of people who do not identify with the roles given in the discourse. The book's target group does not directly address the participant, in other words the follower. It does address the authority, who in turn is supposed to gather and interact with the follower.

When comparing these results and conclusions to the pictures and drawings in the source material, it is clear that these are depicting the actual parties, how they could be and examples from actual gatherings. All pictures are presenting the follower, but in almost 50% of them an authority is also included. In most cases the people in the pictures consists of a group with more than two persons, and often these have an equal gender distribution. The drawings in the book displays either a boy with a rabbit or a girl or both, and these cartoon children are demonstrating techniques or tips from the text.

The number of people in the pictures can be related to the findings in the study about textbooks by Toshie Imada, where the author explains that, by showing more people in the pictures, the stories promote group thinking. This coincides in the source material's focus on gatherings of groups, and mirrors the culture in Japan. Another similarity is that the collectivistic theme of attributes such as sympathy, helpfulness, and the will to make others happy, that Imada found in the Japanese stories, can be found in the emphasised guidelines on how to act as an author throughout the book.

The goal of the source material is interpreted as to instigate the reader to start holding star-watching parties. In contrast, in the “You are Galileo” project by NAOJ, children in development countries, which are the target group, are hoped to get interested and choose careers in science. The ALMA project's attempt to reach out in Japan through social media has the aim to get the public interested and involved. The goal of the TENPLA project is to engage people, and to enjoy astronomy together. In this project, more than in the material analysed in this thesis, the benefits of the group are highlighted, and special arrangements are being done so that people with impediments also can participate.

6 Summary and Conclusion

The aim of this thesis was to determine the intended target group in the Japanese book “*Show me the universe – the new stargazing guidebook*”, through the research questions; “Who is/are the intended reader(s)?”, “Who is/are the intended participant(s)?”, and “Is the book aimed for a specific group of people, even though it claims to be aimed towards everyone with an interest?”. To answer these questions, sentences relevant to the target group were extracted and translated, and then examined through a discourse analysis. The result showed that the intended reader can be described as an authority, that will lead the participants in the gatherings, and the intended participant can be seen as a follower to the authority. Different roles were found connected to both the authority and the follower, with different traits connected to these roles. The authority is a person that has an interest in astronomy from before reading the book, and will be in a leading position, and the different roles can be Leader/Instructor, Teacher, and Parent. The follower is a person that experiences the party as a participant, and can be divided into the roles of Child, Student – with the sub-roles of primary school student, junior high school student, high school student, and female student and Other. Collectivistic attributes were highlighted in the roles, and mirrors the Japanese culture in that the group is important, and a conclusion can be drawn that the book is aimed towards people with the intention of leading others, and not towards just anyone with an interest in astronomy that want to participate in a stargazing party.

In this thesis the target group of one specific Japanese astronomy book were examined, but to make conclusions about astronomy textbooks in general, numerous materials must be studied.

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Appendix – Source Material

The index number before the extracted sentence is the page number in the book, and the letter is the order of appearance.

Extracted sentences

まえがき – Foreword

iii.a. この本は自分で星空を楽しむだけでなく、その感動を多くの人と分かち合いたいという人のためのガイドブックです。

This book is not only for enjoying the starry sky on your own, it is also a guide book for people who want to share the excitement with many others.

iii.b. 初めて天体観望会を開こうとする人にはそのノウハウを、経験のある人にはさらに充実した観望会となるようにさまざまな情報やアイデアの提供を心がけました。

We try to provide the know-how to those who are about to have their first stargazing get-together, and various ideas and information to further enhance the observation gathering for the experienced people.

iii.c. また、天体観望会の指導者も各地で養成され、徐々に増えてきました。

In addition, the training of stargazing party guides in various places has also been steadily increasing.

iii.d. このときに行われて天文イベントの中では天体観望会が最も多かったのですが、その半数以上を天文同好会/愛好者が開催しました。

At this time, among the held astronomical events there were numerous stargazing parties, but half of them were held by astronomy enthusiasts.

iii.e. そのような観望会の開催要望に応えようとする人をこの新バージョンが後押しできれば幸いです。

It would be fortunate if this brand new book could boost people that want to respond to the demands for such observation meetings.

iii.f. これは、通りすがりに気軽に天体を観望できるので、星空に関心を持つ機会を広げ、他の観望会にも参加してみようという気にするかもしれません。

This might encourage you to participate in other observation parties as it enables you to casually observe astronomical objects as they pass; it might broaden the opportunities for people interested in the starry sky.

iii.g. もちろん、各種の教育機関での観望会実践例は多く掲載しています。

Of course, many examples of stargazing party practises at all sorts of education institution appears (in this book).

iii.h. 特に小・中学校では2011年度から全面的に実施されている新しい学習指導要領（”脱ゆとり教育”）において、「観察・実験や自然体験、科学的な体験を一層充実する方向で改善」が図られています。

"Observation, experiment, and natural experience, improvement in the direction of further enrichment of the scientific experience" has been achieved, especially in elementary and junior high schools, with the new government course guidelines("de-relaxed education") that has been fully implemented from academic year 2011.

iii.i. 天体観望会の開催は学校教育において一層望まれています。

In school education the desire for stargazing gatherings has been growing.

iii.j. この本の「観望天体ごとの進め方」には、天体の観察テーマも載っていますので、児童・生徒にとって自然における科学的な体験にふさわしい自由研究課題が見つかるかもしれません。

In the part "the procedure of stargazing", there are astronomical observation themes, so you might find scientific research project issues that has challenges appropriate for children and students.

iii.k. 初めての観望会は、まず家族や友達を相手に行うのがいいでしょう。

We think that it is good to partner up together with friends and family when carrying our the first observation party.

iii.l. ベテランでも観望会の前にはチェックのために家族や隣人などに観望してもらいます。

Even for veterans, in order to check everything before an observation party, one can receive help from family or neighbours etc.

第一部：観望会を開こう – Part one: Let's hold an observation party

1.a. この本を手にとってみた人の多くは、夜空にきらめく星ぼしの美しさに魅せられたり、日食や彗星を見て、その不思議さに驚いた経験のある人でしょう。

Most of those who lay their hands on this book are fascinated by the glittering stars in the night sky, have seen a solar eclipse or a comet, and might have experiences of being surprised at these wonders.

1.b. 今度はその感動を多くの人々と分かち合ってみませんか？

Why don't you try and share those impressions with many other people next time?

1.c. 第一部では、初めて観望会を開こうとする人へ、そのノウハウをさまざまな実践例とともに紹介します。

In this first part we will present the know-how and various implementation examples for people who want to hold a stargazing party for the first time.

第一章：天体観望会とは – Chapter one : Regarding stargazing parties

2.a. 夜空に数え切れないほどの星ぼしを見て、その美しさに感動し、また日食や流れ星などを見て、その不思議さに驚いた経験は多くの人が持っていることでしょう。

There are surely many people with experiences of being awed by seeing wonders such as the countless stars in the night sky, or by seeing a solar eclipse or a shooting star, and becoming deeply moved by its beauty.

2.b. その美しさや驚きを他の人にも味わってほしい、伝えたいと考え、他人に天体を見せる場を設ければ、それは天体観望会です。

If you also want others to enjoy these wonders and beauty, if you are thinking that you want to convey this, and if you can create a place to show astronomic objects to other people, then that is an observation party.

2.c. その規模や対象はいろいろで、家族や仲間に見せるものから、学校や生涯学習施設で行うもの、また同好会などが地域で行うものであるでしょう。

Its scope and target audience may vary; you can have showings for family and friends, or hold something in school or at a lifelong learning facility, and also at clubs and interest associations etc. in the area.

第二章：観望会を始めるにあたって – Chapter two : On initiating an observation party

2.1 日時 – Date and time

4.a. 大人数で星見を楽しむためには、1人で見るときよりも気を配ることが多くなります。

There are more things to pay attention to in order for a large group of people to enjoy star watching, compared to one.

4.b. 観望会の日程は、流星群や日食・月食のようなスケジュールが決まっている天文現象をのぞいては、月齢・日に入り時刻・惑星の位置・天候のクセなどを参考に決めます。

Not only are the astronomic phenomenon such as meteor showers, solar eclipse, and lunar eclipse scheduled in the agenda of an observation party, but also the age of the moon, the sun's setting time, the position of planets, the weather tendencies, etc., are noted.

4.c. 冬は暗くなるのが早いので（17時~18時）、「生徒の集まりやすさ」の点からいえば学校で観望会を開くにはよい時期かもしれません。

Since it gets dark early during winter (5 pm to 6 pm), it might be a good time to have an observation party at school in regards to "the ease of gathering students".

4.d. 開始時刻をあまり早くに設定してしまうと、参加者が集合できないので注意しましょう。

If the time is set too early the participants can't come, so be careful.

2.2 場所 – location

(2) 寒さ・風・雨の対策 - (2) cold weather, wind, measures against rain

5.a. 参加者には、「普段よりも一枚多く着込む」ように知らせておきましょう。

Let's inform the participants that they should "cover up one more layer than usual".

2.6 参加者の構成と対応 – *the composition of participants and correspondence*

(1) 幼児または家族で – (1) *infants in families*

9.a. 「小さな子どもに天体観望なんて」という人もいるかもしれませんが、言葉ができるようになってくると「おひさま」「おつきさま」「おほしさま」などは、身近な対象となります。

There might be people that say "children are too small for stargazing!", but as they start to speak, words such as "Mr/Ms sun", "Mr/Ms moon", and "Mr/Ms star" will become familiar subjects.

9.b. 2歳くらいでも、月をさして「あっ！おつきさまがいる」などということができるようになる。

Even a two-year-old will be able to point to the moon and say things like "Ah! Mr/Ms moon is here".

9.c. 子どもは望遠鏡が大好きです。

Children love telescopes.

9.d. 観望会などという大袈裟なことではなくても、夜道を歩いているだけで自然とふれあうことができるのです。

One doesn't have to join exaggerated events such as observation parties, it is also possible to interact with nature simply by walking down the street at night.

9.e. 「まんまるなおつきさまだね」とか「おひさまがいなくなったら、くらくなっただね」など、子どもは自然の変化に意外に敏感です。

A child is surprisingly sensitive to nature, and can say "Mr/Ms moon is perfectly round, don't you think?" or "It surely would get dark if the sun disappeared" etc.

9.f. 「おつきさまにはもようがついているね、なににみえるかな」とか「おひさまがずいぶんあかくなっただね」など。

Or "Mr/Ms moon has a pattern on it, what can you see?", "Mr/Ms sun has gotten all red, right?", and so on.

9.g. 自然の変化に興味を振り向けるような問いかけをしていけば、自然の観察に導いていくことができるでしょう。

If you keep asking questions that direct their interest towards the changes in nature, you can guide them in their observation of it.

9.h. 大人のほうで、子どものことばに対する感受性を持っていることが必要です。

As an adult, it is necessary to be receptive to children's words.

(2) 小学生に – (2) towards primary school children

9.i. 小学生の特徴は、目で見たもの、耳で聞いたものを素直に取り入れます。

A characteristic of elementary school students is that they obediently take in the things they see and hear.

9.j. 同じものを見ても、感じ方や発想するものが千差万別です。

Even if they see the same thing, their perspectives and ways of thinking are extremely varied.

9.k. 同じ説明をしても、同じ読物を読んでも解釈の仕方が一人一人違います。

Even if they get the same explanation, or get to read the same text, the way of interpreting is different from person to person.

9.l. ある意図で語りかけても、話し手の考えとおりには伝わらないことを前提にしておかなければなりません。

Even if a person speaks with a certain intention, one must assume that the speakers way of thinking is not transmitted to the audience.

9.m. 逆に、一人一人の子どもの発想をどのように取り上げて、それをどのようにして体系的なイメージに組み上げていくかといったことが大切な問題となります。

On the contrary, an important issue is how to listen to each child's way of thinking, and to put together a systematic image of this subject.

9.n. 「このように論理的に説明したのだから、どんな子どもでもわかってもらえるはずだ」というのではなく、一人一人の子どもの心の動きを忠実にみつめ、考え方のよいところや探求する気持ちを大切に伸ばしてあげる配慮が必要です。

It is not the attitude that "because I explain in this logical way, any child should understand" that is required, rather one should try to truthfully look for the movement of each child's heart. It is important to carefully develop good ways to think and searching attitudes.

9.o. 太陽の動きや月の満ち欠けなどは、視点をいろいろな場所に立体的に移動すること、加えてそれが動くことの難しさから、たいへん扱いにくいものとなっています。

Because of the difficulty of moving the viewpoint in three dimensions regarding the sun's movement or the moon's phases etc., movement of things becomes a very hard thing to handle.

9.p. 天体の運行についてある程度正確に扱う場合には、天体の大きさと距離について正しい縮尺での関係をイメージできるようにした上で、立体的な模型を用いて話してあげることが必要となるでしょう。

It will become more necessary to use three dimensional models when teaching, than a picture with the related size and distance for astronomical objects, when dealing with the certain degree of accuracy in movement of the bodies.

(3) 中学生に – (3) towards junior high school students

9.q. 中学校教育は、体験的な自然観察と、解析的な数理科学の橋渡しをしています。

The education in junior high school bridges the gap between nature observation experiences and analytical mathematical science.

9.r. 中学1年生では小学生的な頭の柔らかさを失っていませんし、中学3年生では高校生的な論理力や解析力を次第に身につけてきていますから、対象となる年次によってテーマを選ぶ工夫ができます。

Because junior high school 1st year students haven't lost the open-mindedness from elementary school, and 3rd year students gradually have learned analytic proficiency and the logic ability of a high school student, one can come up with a theme to choose from depending on the annual subjects.

10.a. 中3くらいになると社会的な問題についても興味を持つ生徒が出てきますから、論理構成の複雑なテーマでもついてくるでしょう。

Since students around 3rd year start to have an interest in social issues, there are also themes with complex logical layouts to follow.

10.b. 天文の分野は、時期的には中3の2学期に取り上げられることが多いようです。

The field of astronomy is usually studied periodically in 3rd year during the second semester.

(4) 高校生に – (4) towards high school students

10.c. 高校生では、一応大人と同じように接することができる年代ですが、未成年ですから終夜観測などは一定の制限があります。

Although one can interact with high school students more or less as adults,

there are certain restrictions when it comes to all night observations etc. because they are minors.

10.d. 科学に関して非常に詳しい知識を持っている生徒がいる反面、星占いや宇宙人などを適当に信じて選ぶような傾向も持っています。

While there are students who have a very detailed knowledge of science, they have a tendency to choose to irresponsibly believe in horoscopes, aliens, and so on.

10.e. また、あるテーマと方向性を示してあげれば、自主的に活動することもできるようになります。

Also, if you give a certain theme and direction, they can work independently.

(5) 一般の人に – (5) towards ordinary people

10.f. 一般向けに観望会を開く場合には、全く基礎知識のない人から、アマチュアとしてかなりのレベルの人までを想定したものとなるでしょう。

If you hold an observation party for the general public, it will be assumed that as amateurs people have no foundation what so ever.

10.g. 会の規模も数人単位の場合から金環日食などを数千人規模で観望するような会までさまざまです。

Also the size of the party differs from a couple of people to thousands at annual solar eclipse.

10.h. あらかじめ参加者の構成がわかっているときには、初めての人にも、ある程度のレベルの人にも答えられるように複数のを準備することもあります。

At times when the participants composition is known in advance, there are preparations to be made so that one can answer questions from first-timers as well as people at a certain level.

2.7 指導者 – the instructor

10.i. 指導者は、観望者が安全に、確実に天体をみられるように心がけます。

The aim for the instructor is that the observers safely and reliably are able to watch the astronomical objects.

10.j. スタッフに余裕があるならば、望遠鏡を操作して天体の見方を指導する人と、望遠鏡に並んで持つ観望者に対応する人を配量できることが望まれます。

If there is room for staff, it is desirable to meter these out to support observers with telescopes, along with people who are guiding how to manage the telescopes to see the celestial bodies.

第三章：初めて観望会を開く人のために – Chapter three : For those who are holding their first observation party

3.1 学校にて – at school

(1) まず、やってみよう – first, let's try

12.a. はじめて観望会を開催しようとしているみなさんにとっては、夜間自分1人で児童・生徒を掌握できるかどうかという不安が大きいと思います。

We think that all of you holding an observation party for the first time feel considerable anxiety regarding whether or not you are able to handle children or students alone at night.

12.b. 内容や方法にもよりますが、1人で1クラス分の参加者くらいはなんとか指導できるものです。

It also depends on the subject and method, but one can lead a class worth of participants by oneself.

(2) 仲間を集めよう – **let's gather friends**

(天文クラブの生徒の協力) – **collaboration of students in astronomy club**

12.d. 人に教えることによって部員のレベルや意識も向上するので一石二鳥です。

Since members' level and awareness rises when teaching people, you kill two bird with one stone.

(5) 参加者の募集 – **recruitment of participants**

13.a. 特に女子生徒は、予定時刻になったら親に迎えにきてもらうなど、安心して参加できるような配慮をしましょう。

Let's have consideration especially with female students, so that parents can pick them up at the designated time, in order to let students participate with ease.

3.2 生涯学習施設にて – **at a lifelong learning institution**

(5) 参加者募集 – **participant recruitment**

募集対象 – **recruitment target**

15.a. このためよく使われる「子ども天体教室」、「親子で星を見る会」といった講座名は、一般の参加者が気後れして参加しづらいというデメリットもあります。

Because of this the much used course names like "children's astronomical classroom" or "parent and child star watching meeting", have the disadvantage of making the average participant nervous about participating.

3.3 宿泊観望会 – observation party with accommodation

(5) 参加者募集 - recruitment target

16.a. 募集方法は、参加者が児童・生徒の場合には、保護者の参加承諾書を提出してもらいます。

If the participants are children or students, as the recruitment method, have them submit a consent form for participation from their guardian.

第四章：いろいろな観望会 – Chapter four : Various observation parties

4.2 天体の動きを実際の星空で(中学校) - movements of astronomical objects in the actual starry sky (junior high school)

20.a. 天文は専門外の筆者ですが、授業をするにあって実際の星を見せることの必要性を感じ、観望会を開催した経験のある先輩のアドバイスを受けて観望会を実施することができました。

Although the author's area of expertise didn't include astronomy, he/she felt that it was necessary to show real stars in class, and it was possible to carry out an observation party when taking advices from a senior that had experience from holding such.

(4) 効果 - effect

21.a. 星さえ見えれば生徒には好評です。

Even if you only can see stars, it is popular for students.

21.b. 1回の観察で多くのことを理解できるとは思えませんが、これから自分で観察してみようとか、考えてみようといった動機づけになるでしょう。

We don't think that you can understand many things at the first observation, but it might become an incentive to reflect and try to observe by yourself.

21.c. 天体については興味を持っている生徒は多いのですが、教科書などの図で示されている天体の位置関係などがなかなか理解できずに嫌いになってしまいます。

Even though there are many students with interest in celestial objects, they grow to dislike the figures that demonstrates the astronomical objects positions in textbooks and such that they cant easily understand.

4.3 夕方に行う観望会（私立中・高一貫校での例） - *observation parties carried out in the evening (example from a private combined junior and high school)*

（4）総括 - summary

23.a. 生徒の方は、転校をひかえて思い出作りに参加した者もいて、わりと盛り上がりました。

As for the students that were also participating; creating memories and refrained from changing schools, they got relatively excited

23.b. 生徒が喜んで帰ってくれたので、ほっと一安心です。

Because the students gladly returned, it was a great relief.

4.5 公立天文台で行った天体観望会 - *Stargazing gathering carried out in a public observatory*

（6）女性のための天体観望会 – *stargazing sessions for women*

27.a. 日頃、天体観望の機会がない大人（18歳以上）の女性を対象に、宿泊を伴う観望会(場所：郊外の宿泊施設)を催し、星空を満喫していただいております。

Normally, we hold an observation party with lodging (place: lodging facilities in the suburbs) for women (over 18 years old) that doesn't have the chance to stargaze, so that they can fully enjoy the starry sky.

4.10 “街角” 観望会 - “street corner” observation party

38.a. 都会を離れた星空の下、設備の充実した天文施設で天体観望会を楽しむのは、もちろんとても重要な機会ですが、一般の人にとってもっと身近な風景の中で身近な星空に出会い、宇宙に思いをはせる機会を作ることはできないでしょうか。

Even though to enjoy a stargazing party at an astronomical facility, with fulfilling equipments under the distant urban starry sky, certainly is a very important opportunity, as far as ordinary people are concerned wouldn't it be possible to encounter the starry sky in a more familiar landscape and create opportunities to think about space?

38.b. 各地で、“街角”での観望会が試みられています。

"Street corner" observation parties is attempted at many places.

(1) “街角”へ飛び出すということ - Pop-up at street corners

38.c. 天文台やプラネタリウム、科学館などの施設で開催される天体観望会や、星まつりのようなイベントに訪れる人はたくさんいます。

There are many visitors to events like star festivals or stargazing parties held at institutions such as science museums, planetariums and observatories.

38.d. そうした人々の多くは、日頃から天文分野に関心を持っていたり、アウトドアでの体験に興味があったり、積極的に星空との出会いを求めて楽しんでいることでしょう。

Many of these people are normally interested in the astronomy field, outdoor experiences, and are actively seeking and enjoying starry sky meetings.

38.e. 一方で、大多数の人々にとって、そのような施設や機会の存在は、わざわざ探そうとする特別の理由が訪れなければ知り得ないもの、求める動機の及び得ないものなのではないでしょうか。

On the other hand, to the great majority, when it comes to the existence of institutions or opportunities like that, if no special reasons appear to expressly search for these, then people are unable to reach for the incentive to search for them and don't acquire the knowledge about them.

4.1.1 我が家の気まぐれスターウォッチング - *star-watching on a whim, at home*

40.a. 自分の子どもと星を見るというのは、夜の散歩をしながら星座を探したり、旅行中に美しい星空に出会ったりと気まぐれなものです。

To look at stars with your child is something you do on a whim; searching for a constellation during the night stroll, or encounter the beautiful starry sky during a trip.

40.c. また、たまには友達も誘って星を見ようかということもあります。

Also, occasionally one invites friends to watch the stars.