

How practice in plant collection influences interactions with illustrations and written texts on local plants? Case study from Daghestan, North Caucasus

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Research

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Abstract

Background It is only recently that written sources of local knowledge on plants are not being ignored by scholars as not belonging to “traditional” knowledge. However, usually ethnobotanical texts, if they at all focus on knowledge from written sources, they do not pay attention to the actual processes of interaction with written texts and illustrations. During our research we examined people’s interactions with texts, illustrations and herbarium specimens of plants they collect or are familiar with. We focused on a small community of Shiri people in the mountainous village and in the lowland settlements in the Republic of Daghestan, Russia. In the paper we address the following questions: how do Shiri people interact with illustrations, written text and herbaria specimens? How amount of practice in plant collection influences reading of the texts about plants and looking at illustrations? What are the methodological implications of the ways people interact with illustrations, texts and herbaria specimens?

Methods Our research was based on long term ethnographic fieldwork: co-designing of a booklet showing edible plants people collect in Shiri, semi-structured interviews and video-recording and observing interactions between people and text/illustrations/voucher specimens.

Results We identified three kinds of interactions between individuals and text/illustrations: “text-wayfaring” – predominantly a bodily interaction between individual and illustrations and text; “fact/spelling checking” – predominantly discursive and information focused; “between wayfaring and fact checking” – the mix of the two above. Using the idea of textual poaching as well as knowledge making approach we show that the way of interacting influences what is acquired from the text/illustrations and how. This process influences reader’s LEK. The mere presence of the information in the text available to people does not imply that they will acquire it, make use of it and change their LEK. Photographs and pressed specimens of locally known plants are often not (or only partly) recognized. Video-recording is essential for analysing the above interactions.

Conclusions In ethnobotanical research it is important to pay more attention to people’s interaction with their sources of knowledge, including text and illustrations. Discursive part of LEK is more easily influenced by written sources. Practice of plant collection is not as easily influenced.

Background

Written sources of local knowledge on plants were often ignored by scholars as not belonging to LEK or TEK. On one hand, scholars as far back as in XIX century realized that there is an influence of written sources on “traditional knowledge” [1]. On the other hand, however, many ethnobotanists who work in communities with little access to written sources, still try to separate the knowledge from written sources from “pure” TK ([2], [3] and critique of such position by Vermeylen *et al.* [4]). Such practice may be, of course, goal determined. If the goal is to look for new medicines then it might be feasible to try to separate “pure” TEK. If we, however, want to understand better the processes of knowledge making then, we argue, we cannot ignore written sources on plants, if they are important to people. Some

ethnobotanists (for example [5], [6], [3], [7], [8]) have already paid attention to knowledge from written sources and showed the importance of written sources in LEK of various communities. They, however, did not scrutinize the actual processes of interaction with written texts.

During our research we examined interaction of people with texts and illustrations of plants they collect or are familiar with. We focused on a small community of Shiri people who live in the mountainous Shiri village and in the lowland settlements and towns (Druzhba, Izberbash, Makhachkala) situated along the Caspian coast in Daghestan. Along with people from the community we collected the edible plant specimens [9], then co-designed a booklet containing the local edible plants, and then between 2017-2019, distributed it among Shiri dwellers and people originating from the village but currently living in the lowlands. We filmed the interaction with the booklet.

Daghestan is the Russia's southernmost and the most ethnically and linguistically diverse republic, the considerable part of which belongs to the Caucasus Biodiversity Hot Spot. Most Daghestanis are Sunni Muslims. Shiri village is located in the mountains in Dakhadaevsky region of Daghestan. People in Shiri speak a distinct language which belongs to the Kubachi subgroup of Dargi languages and it has not been documented until recently. During the course of our research the number of households decreased by half and there are currently only 6 households in the village. Nowadays, elders from Shiri are encouraged by their children to join them in the lowlands, while younger generation looks for permanent or seasonal work outside the republic.

Edible plants are important for elderly and middle-aged Shiri people in regard to their taste values, identity and social relations (for more see [9]), rather than economic reasons. Although knowledge about plant collection is a predominantly women's knowledge cf. [12], [13], knowledge about wild leafy vegetables eaten on the spot (snacks) is also shared among boys, who are more often than girls send up to herd cattle. Shiri people, both women and men, often, share plants or discuss their properties among themselves. Their immense knowledge about wild plants is, however, only partly passed to the younger generation which lives in the lowlands and either grows one's own plants in the garden or buys them. They visit Shiri only in summer for a short time during which, even if they take occasional forest walks, they do not fully engage in plant collection.

Reciprocity and engaging with the community resulted with the booklets brought back to the community. Bringing written materials to the researched community may rise controversies. One of such controversies derives from the idea that TEK (Traditional Environmental Knowledge) is seen as basing only on the knowledge transmitted from one generation to the next cf. [4]. In the communities having long contact with written sources, the mixing of various sources is obvious (global interconnections make it even more visible [14], [3]). The second controversy regarding bringing written materials to the community comes from the idea that the researcher should not influence the community (if it is at all possible). Obviously for anthropologists we do not see it as feasible, real or even desired cf. [15]. The third controversy concerns standardizing the knowledge [16], [17].

In our opinion what makes knowledge “traditional” is not the knowledge about particular specimens or facts about them or the source of this knowledge (older generations), but the fact that this knowledge is made and re-made and fact that this knowledge is important for the community. As a response to the changes in the ways of life and in biodiversity the content of local knowledge changes and this may be seen as a adaptive process cf. [18]. That is why we decided to co-design the booklets and distribute them in the community. The *emic* perception of knowledge being traditional should be taken into account cf. [19]. Not imposing the categorizations of knowledge quality (with traditional seen as better by those who see it as “pure” and nature bonded, or less valuable by others [3]) is ethically important for us cf. [2]).

It is also important to mention here that we had other goals than for example [2] (and a few ethnobotanical texts on written sources) for whom the main goals of ethnobotanical and ethnopharmacological research were: “input to drug discovery”, “conservation of cultural heritage” and “validation of local pharmacopoeias” – we did not disengage knowledge from written sources from LEK. We were interested in the processes of knowledge making in particular those connected to written sources and illustrations. We follow the de Certeau’s idea that reading the text does not necessarily change the person reading it and her or his knowledge [20]. The influence is two directional. Reader changes the read text as well.

During our research, we tried to answer the following questions. How do Shiri people interact with illustrations, written text and herbaria specimens? How amount of practice in plant collection influences reading of the texts about plants and looking at illustrations? What are the methodological implications of the ways people interact with illustrations, texts and herbaria specimens? We will address the above questions basing on the process of interaction with a written text and illustrations and the process of co-designing the booklet by Shiri people.

Methodology

The article is based on the fieldwork among Shiri people in Daghestan conducted between 2015-2019. In that period we conducted four field trips, altogether 12 weeks of fieldwork. First, between 2012-2014 we collected edible plants with Shiri people. Voucher specimens were deposited in the herbarium of the University of Warsaw Botanic Garden. During field trips in 2015 and 2016 booklets with edible plants from Shiri were co-designed with Shiri people. Between 2017 and 2019 we distributed the booklets in Shiri and in the lowland settlements (Druzhba, Izberbash, Makhachkala) where people of Shiri origin live. We video-recorded the interaction with the booklets. The very first idea to create a booklet came in 2015 from Ibragim, the local teacher in Shiri. He started to be interested in plants not long before because of his son’s illness (cf. [23]). Ibragim wanted to know if plants that grow in Shiri have any healing properties. Additionally, he also wanted to use such a booklet to teach children at school about Shiri’s flora. This idea was supported by the school director Akhmed and university teacher Abdulkadyr. They wanted to have a school/encyclopedia-type booklet with detailed information on plants and their medical properties. It was

also important for them to preserve local plant names for future generations. Women did not want to participate in the co-designing of the booklet, claiming that “we and the men would know better”. Suggestions to include the local usage of plants or recipes of dishes with plants were not really cherished. “What for? Everybody knows it”, commented Ibragim. It seems that Shiri people wanted to include in the booklet the information they did not know or were bound to forget, rather than everyday knowledge that was actively in use. Eventually the booklet included: botanical description of 27 important edible plants, their habitat and range, medical properties, and the short paragraph on the usage in Shiri.

We distributed booklets among all households in Shiri. In the lowlands we tried to meet all of our previous informants who migrated from Shiri as well as some of their relatives. We video-recorded the browsing, reading or commenting on the booklet in order to grasp details of the interaction with the written text and the illustrations.

We video or audio recorded semi-structured interviews and unstructured conversations with 21 adult women and 13 men originating from Shiri village and living in Shiri or in the lowland settlements of Druzhba, Izberbash, Chinar or Makhachkala. We also noted occasional comments from other 31 individuals. All of them were non-specialists in plant knowledge. The age range of informants was from mid 30s to 90s. Most of them, therefore, received their (at least) elementary education still in the Soviet times (which is important for the knowledge making). It is worth mentioning here that as of 2018 we knew all Shiri people very well which allowed great levels of trust and naturalness when video-recording their interactions with booklets, with each other and with us. In this respect our methodology was quite specific and, we believe, cannot be randomly applied in other contexts.

Expression of consent was required before each interview and it was obtained verbally. Main language of research was Russian which is the *lingua-franca* in Daghestan and it is the most common language of communication with people outside of the village. Shiri is spoken only in the village and in the lowlands where Shiri people migrated – however in these multi-ethnic settlements most people are fluent in Russian.

Results And Discussion

First we will present results and discussion regarding types of interaction with text and illustrations, then we will present methodological implications.

Knowledge about plants was important for all of our interlocutors, even those who have little practice in plant collections. Local plants were a part of their identity and made up for important part of social relations [9]. Basing on the process of interaction with a written text and illustrations and the process of co-designing the booklet by Shiri people we identified three kinds of interactions between individuals and text/illustrations/herbaria specimens. The first kind of interaction “text-wayfaring” is predominantly a bodily interaction between individual and illustrations (with or without additional notice of plant names).

It may include tracking the contour of leaves or of the whole plant. The second kind of interaction “fact/spelling checking” is predominantly discursive and information focused. The third kind of interaction “between wayfaring and fact checking” is the mix of the two above.

Patimat (in her 70s) and Malaykat (in her 40s) who had vast knowledge on plant collection were happy to receive the booklet in 2017 but they did not read it, but just browsed through it looking at the illustrations and plant names. They briefly looked at the photos/illustrations and stopped at those that were close to 1:1 such as: *duc'armura* (*Bunias orientalis* L.), *ḡaḡḡamura* (*Cerastium davuricum* Fisch. ex Spreng.), *guržinakḡi* (*Oberna multifida* (Adams) Ikonn.). They looked at them with some suspicion, tracing the contour of leaves or the contour of drawings, as if trying to determine if it was a proper plant or not. It seemed to us as their try to make visual experience more or bodily (embodied) connected to the movement delineating the borders of the leaf blade. They skipped the close-ups without comment. When we asked them later about these illustrations they doubted if this plant actually grows in Shiri or if this is the right illustration of the species. When tracing the contour of the drawn plant (for example in *sḡisḡupi*, *Allium victorialis* L. and *dagḡala q'ar*, *Plantago major* L.) they also made a sign of “cutting” when they came to the root, which when asked later, they considered unnecessary/not-useful. Compared to other interlocutors, they put the booklet relatively quickly away. They were surprised when they heard us discuss the section “Uses in Shiri” with men present in the room. Three of our interlocutors commented: “we know this anyway”.

Abdulkadyr, university teacher in his 60s when he first got the printed version of the booklet in 2017, he started reading it from the table of contents. He right away spotted two spelling mistakes and one typos in the plant names pointing them to us in a teacher-like way (our gender obviously made it easier for him to assume the authoritative perspective). He took us to his brother, Timur (in his 40s), in the outskirts of Makhachkala. Their family left Shiri when they were still children, nowadays, they visit the village once or twice a year for religious holidays. Timur's wife Fatima (in her 40s) lived in Shiri until getting married and often visited the village in summer to collect plants with her mother. The whole family gathered to take a look at the booklet.

“*Žibžni*” – reads Fatima looking at the heading at the top of the page with *Polygonum aviculare* agg. “This is certainly not *žibžni*. *Žibžni* does not grow up” – she points up. “It goes like this” – she makes a movement with both of her arms and palms above the surface of the table to show how the plant grows on the ground and how it spreads. “It cannot be *žibžni*” – she continues. “*Žibžni* grows in the middle of the village” – she repeats the movement. Abdulkadyr is sitting nearby but not really paying attention to Fatima.

“*Sporish*” – he says looking at the section with local Russian names of *Polygonum aviculare* agg. “It really totally cleans a body, if you drink a tea out of it for half year, it will truly clear your body. A very useful thing,” – he adds.

“Is *žibžni* the same as *sporish*?” – Iwona asks.

“No, *gorets ptichiy is sporysh*, it is written here” – he points to the *sporish* name in the local plant names section in the booklet.

“It grows in the centre of the village. It spreads and creeps (Rus. *stelitsya*), it grows in all conditions, it just grows like... Look, there is a word ‘*sporish*’ (in Russian: *quarrels*) – he says in a lecturing tone. “it just quarrels with the nature, you can walk on it, it is a very life-loving plant.”

“How is then *sporysh* in Shiri language?” – Iwona asks.

“In Shiri I don’t know” – says Abdulkadyr. His brother also shrugs his shoulders.

At another occasion, in March 2019, Rabadan (in his 50s) and Marat (in his 30s) were browsing through the booklet in Marat’s house in Izberbash.

“It is not *zveroboy*”, said Rabadan with confidence when reading the heading and looking at the photograph of (*zveroboy* is the Russian folk name for *Hypericum perforatum* spp.)

“No, it is *zveroboy*, they just made a photo from here” – argues Marat making a gesture to suggest that photo was made from above. “These are *zveroboy* flowers, just photographed from here.” – he adds.

“It looks like a bush/shrub here.” – says Rabadan. “Half of it is missing” – he adds. He made a similar comment on *q̣ạnala čutni* (*Malva* spp. (*Malva neglecta* Wallr. and *M. pusilla* Sm.)).

“*Shulum* (*Mentha aquatica* L.), it is also not clear here. At this time (as on the picture) it is already too old” – said Marat turning the page. In his opinion we should put in the booklet illustrations of plants “as they look when they are collected”, as it may be confusing.

Text and illustration poaching, wayfaring, fact-checking

Patimat’s and Malaykat’s interaction with text and illustrations in the booklet described above is an exemplification of **text wayfaring**. The term wayfaring comes from Tim Ingold who differentiated between modern traveller (travelling from one point to the other and not interested in the way itself) versus wayfarer (focused on the process of travelling, finding important things on the way, apprehending in movement) [26], [27]. Such interaction was specific for interlocutors whose knowledge was based on experience and passed from generation to generation that is (for the most part) people who lived in Shiri (or visited often) and actively collected plants: both during forest-walks or when going to the pastures. It is mostly women who belong to the group, however men living in Shiri usually also possessed knowledge about plants, in particular snacks that collected in childhood.

People who have vast amount of embodied knowledge plus practice in plant collection tend to physically interact with illustrations (touching, tracing the contour of the drawing with the finger). People did the same when watching pressed herbarium specimens (explained later). Through touching, tracking and remembering the contour they check if it really is the plant named above. Bodily experience of plants is so crucial for them that contour tracking proves to be the best way to recognize the plant on the illustration.

Such way of deciphering the illustration is not necessarily obvious for a reader more familiar with botanical illustration, looking for details using the sense of vision would be much more intuitive for Ingoldian “modern reader” [25]. Touching the illustrations with fingers by our interlocutors resembles the idea to combine poking (here poking the illustrations and herbarium specimens) with de Certeau’s [20] poaching proposed by Matsutake Research Group [26] and then Eben Kirksey, Craig Schuetze and Nick Shapiro [27]. The above researchers do it by noticing the affinity of the English word “poach” with the French word *pocher* (to push or poke with a finger or pointed instrument, to pierce). Kirksey uses such metaphor: “At the Multispecies Salon, panelists poached each other’s papers, like chefs «poach» pears, using red wine and honey to intensify and transform the flavour of the fruit.” [27]. Similarly Patimat and Malaykat “poach” the contours of drawing to intensify the experience, to make it more similar to their everyday practice and to be able to recognize the plants they collect and use on daily basis.

Fatima did not recognize *žibžni* (*Polygonum aviculare* agg.), the species she knows and collects for *ħuħkni* (pie with filling, also referred to as *chudu*) filling. The illustration she was watching is a botanical graphic showing the plant abstracted from the environment. That is why it looks like it has shoots pointing upwards. *Polygonum aviculare* agg. is a plant species (or rather aggregate species) presenting in natural environment a high diversity of shapes, depending on the habitat it grows in (bigger leaves more and upright shape in more fertile habitats; creeping habit and smaller leaves in places with less available soil and tramping more often), but she did not recognize it on the illustration. The two dimensional de-contextualized picture did not enable her to recognize plant she knows very well and easily recognizes in various habitats (for example in Shiri village centre, where it grows in poor soil and is prone to tramping by animals and people). Fatima was quite sure that the illustration is not proper.

Shiri people were proud to possess a booklet, they showed it to their neighbours from different ethnic groups and regions who eagerly invited us to their regions to prepare such a booklet for them. It was, however, surprising for us that both men and women did not have a need for the information about local uses, or local recipes to be included. This information when printed seemed irrelevant, as if from a different knowledge order. Other parts of the plant description (if read at all) were not questioned – on the contrary, they served as a confirmation of one’s knowledge – “look, it is written here”. Some of our interlocutors hoped that the book will reveal that there are plants in Shiri that contain good medical properties to cure such illnesses as cancer. It turns out that although they were mostly interested in medical properties and occurrence in other parts of the world (or former USSR) they never actually read it at the very moment or later (we do not know, however, if they would actually apply it if somebody was in medical need). This knowledge was, therefore, rather meant as pure information to be collected but not practised. The authority of the rigid botanical text seemed prevailing.

As we can see from the case studies people do a lot of textual poaching[20]. They select information needed and change it according to their goals. Our interlocutors freely inscribe meanings to texts they are reading, poaching into it or as de Certeau puts it they “convert the text through reading and to ‘run it’ the way one runs traffic lights” [20] p.176. Their practice of reading rarely or even never resembles the practice de Certeau ascribed to “elite literati” [20]. “Elite literati” claim the rights to inscribe “proper”

meanings to texts and assume that people reading these texts internalize those meanings. In a way researchers who fear the influence of books on LEK behave as such “elite literati”. De Certeau’s theory refers to the written texts, however, as will be clear from the case studies below, this remark may be as well spread to the way people interact with illustrations.

Abdulkadyr’s interaction is an exemplification of an interaction that we called a **fact-checking**. Abdulkadyr engaged mostly with the text not illustrations, he was the first to find spelling mistakes in the table of contents and in the particular entries. He partly read the text, in particular the part about medical characteristics. He also paid attention to the Russian folk and official names. The “fact-checking” kind of interaction between individuals and text is more discursive – the authority of the written text matters most. The written names are linked to the general knowledge of the social reality (and the fact that he collected Shiri plant names and linked them to the Russian plant names) but not necessarily to the practice of plant collection. Abdulkadyr also paid close attention to the etymology of plant names which may be related to the emphasis put on it both now and in the Soviet times, especially in linguistics and literature studies (see for example [28], [29]). He also remarked that *mat'-i-machekha* (Tussilago farfara L.) means *mat'* (mother) and *machekha* (step-mother), and *zveroboy* is an animal killer (cf. [30]). On other occasions he also asked his wife about meaning of a particular plant name, what seemed more important to him than the plant itself. It has to be mentioned here that Abdulkadyr has also been working on a book about Shiri and collected Shiri plants names, assigning to them Russian plant names (but not to the species) (the practice noticed by Łuczaj in regard to some Polish ethnographers [31], [32]). Generally, the knowledge about plant names and their meanings seems to be more discursive than practical knowledge – *mat'-i-machekha* is not widely used, while *zveroboy* is collected but rarely actually used (also both do not have local names), both are however often mentioned when conversation is conducted in Russian. Both plants are characteristic for Russian pharmacopoeia and popular in media discourse on plants. Such interaction was specific to individuals with LEK characterized by high interest in plants but based on more discursive than practical knowledge. They left Shiri in childhood or young adulthood and have little experience of plant collection. They may, however, subscribed to magazines or read Soviet-style botanical books. They generally valued the authority of the written text. As otherwise “knowledgeable” people (teachers, professors) they usually held high positions in their *tukhums* (lineages) and were asked for advise.

Rabadan and Marat’s interaction with the text and illustration is an exemplification of an interaction that we called **“between wayfaring and fact checking”**. Sõukand, referring to Ingold showed that if people do not engage with books they are always wayfaring and if they use books they behave like modern traveller [7]. Kołodziejska shows that it depends which plant they look for and why they take a walk [33], [8]. Similar observations can be made for text. Rabadan and Marat have both collected plants living in Shiri in the childhood, but since then they had little actual experience with plant collection. As their plant knowledge comes mostly from long-ago experience they remember the plants as they looked during the time of collections but had little memory of them in other seasons. These kinds of interactions were specific to people who grew up in Shiri and moved to the lowlands as adults or young adults. In childhood they actively collected plants, either as snacks or helping the grown-ups. Nowadays they visit

Shiri occasionally (for holidays or funerals) and rarely collect plants. For the most part they are not as interested in plants to such an extent as to subscribe to magazines or possess plant books.

Collected by Shiri people and the phenological phase as presented on the illustration. Local people would rather have the illustrations at the time when it is collected. The idea that showing photographs with different phenological phases which is often done to facilitate plant recognition and in consequence elucidation of as many plant species collected by the surveyed community as possible, did not correspond with the ideas of our interlocutors who wanted illustration to represent the moment of collection (cf. [34]). Also they perceived the plant as a whole and parts displayed on the figure (or figures containing separately the root, the main part and the flower which is quite typical for botanical graphics) were confusing for them. The critique of graphics and photographs of “too old” or “too young” plants as well as illustrations showing “useless” and dissected specimens was present in all kinds of interactions.

The types of interactions analysed above, though more typical for particular groups of LEK-holders, may be observed across groups because every person in particular situation may interact with texts and illustrations in any of the three ways. Overall, the interactions with written text/illustrations of plants are influenced by (not)engaging with plants, individual’s gender and formal education as well as his or her attitude towards written text and its authority.

Methodological Implications

Our research enabled us to notice three methodological implications, the first one concerning ethnobotanical methods which rely on showing photographs and pressed specimens, the second one concerning gender and the third one, video-recording.

In ethnobotanical manuals (for example [35], [36]) one of the methods to collect and verify ethnobotanical data advises researchers to show local people illustrations with plants and ask them if they know or collect them. As illustrated in our case studies, pictures were considered proper by our interlocutors when they featured the plant in the vegetation phase when it is collected and when the parts of plant they use were clearly depicted, when they were the “right” size, that is 1:1 proportion, not a close up. Thomas *et al.* similarly argue for 1:1 depictions, whereas while they used magnified photographs of plant parts to facilitate species identification in our case such depictions were confusing for informants [34]. Therefore, using illustrations for the purpose of research is not always a good idea. Such properties of photographs as picture angle, magnification, parts of the plant specimen as well as the specimen chosen for the photo, for best field performance should be consulted with community members. It is important to remember that although the perception of illustrations is culture bounded, it also is to some extent individual. Researchers working in communities without intense contact with written texts and illustrations, for example Reyes-Garcia and her team for Tsimané in Bolivia, demonstrated that people had problems to connect illustration of a plant with an actual plant species [37]. Kołodziejska has shown

that in Ukraine even those who had experience with plant collection and book reading had often great difficulties with this task [33].

Another methodological implication of our research concerns methodology applied by some scholars [34] and advised in classical ethnobotanical research manuals ([35], [36]) which is based on showing pressed herbaria specimens to local people. Our research revealed that interaction with illustrations was similar to the interaction with pressed herbaria specimens. For example Patimat, who has a vast experience in plant collection took drying *amara* (*Cerastium davuricum* Fisch. ex Spreng.) from our herbaria collection and traced the contour of the dry plant with her finger. Then (to our dismay) she took its leaf in between her fingers and started rubbing it. "What is this?" "Did we collect it? Hmm". *Cerastium davuricum* Fisch. ex Spreng. was among the most important plants collected in Shiri, the one that was considered unique, therefore, initially, we thought that we collected the wrong specimen but *amara* collected in the next days also turned out to be *Cerastium davuricum* Fisch. ex Spreng. Shiri people with less experience had even more trouble recognizing pressed herbaria specimens cf. [9]. In the research of Thomas *et al.* the recognition of voucher specimens was around 77% and of photographed plants 94%) [34].

Once plants stop to be 3-dimensional, taken out of their natural habitat, people touch them, take leaves in between their fingers and rub or bend them. Through this interaction, through touch they give them another dimension cf. [34]. Our interlocutors, however, did not have a problem with identifying 3-dimensional dried plants they have dried themselves (usually by hanging bundles of herbs on the line) or which were dried by their neighbours. Here some comparison can be made to Ingold who differentiated between modern text and the manuscripts written by scribes in the Middle Ages [38]. He writes: "But the lines of the plot are not traced by the reader as he moves through the text. They are rather supposed to be laid out already before the journey begins. These lines are connectors. To read them, as Leroi-Gourhan realised, is to study a plan rather than to follow a trail. Unlike his medieval predecessor – an inhabitant of the page myopically entangled in its inky traces – the modern reader surveys the page as if from a great height. Routing across it from point to point (...)" [38].

Another methodological implication concerns gender of interlocutors and researchers. Women were in most cases the most knowledgeable individuals in regard to plants. However, in presence of men, out of respect they did not demonstrate their plant knowledge unless explicitly asked by men or by us. Men often consulted them in regard to plant names. Men watching the booklets were more self-assured and ready to contest the female researchers authority, whereas women were more reserved and only occasionally dropped a comment. Also, men paid more attention to plants they had collected in childhood (snacks) plus plants that are easy to depict but they skipped many other species. Therefore, researcher should be aware of such gender implications (for example [13]), both in regard to interlocutors and herself/himself.

The last methodological implication concerns video-recording. We realized that methodology based on video-recording was indispensable for this research to be successful. It enabled us to analyse details of

bodily interactions with booklets which could otherwise be omitted. This kind of methodology is, however, not possible without long-term stays and great levels of trust between interlocutors and the researcher.

Conclusions

In ethnobotanical research it is important to pay more attention to people's interaction with their sources of knowledge, including text and illustrations. Without scrutinizing these interactions it is hard to fully understand the influence of sources of knowledge on people's LEK. What is more, ignoring parts of the social context may lead to misunderstanding of the processes of knowledge making. This is why, we shall not reject written sources of knowledge because only then we can better understand what LEK is.

Ethnobotanists as researchers function in particular context and are embedded in discourses that are oriented towards bio-cultural diversity conservation and value heritage as such [10]. Institutional definitions of TEK and ILK (for ex. [39]) are very important as sources of agency for local communities and researchers. We do not criticize such standing point, but we do say that it is important to be aware of such positionality (cf. [40], [41]). In our opinion what makes knowledge "traditional" is not the knowledge about particular specimens or facts about them or the source of this knowledge but the fact that this knowledge is made and re-made and fact that this knowledge is important for the community. *Emic* perception of traditionality of knowledge is crucial for us.

Written text (as observed on the example of interaction with booklets and narratives about them) influences people's discursive knowledge, but does not influence praxis of plant collection and usage. Shiri people were more interested in just having booklets than reading/using them so the influence of the booklet on their plant knowledge was negligible. Although they wanted to know medicinal properties from official pharmacopoeia and uses in other parts of the world (or former USSR), this knowledge was rather meant as pure information to be collected but not practised.

Methodology that relies on showing pressed specimens or photographs to interlocutors (although in many research situations convenient and rewarding (ex. [42], [34]), may be a very misleading way of collecting ethnobotanical data. Also, gender of the interlocutors and researchers has to be taken into account.

For further research we suggest that it would be beneficial to conduct comparative and broader research in various communities on the interactions between people and text and plant illustrations.

Declarations

Ethics approval and consent to participate:

Research was done in accordance with the ISE and AAA codes of ethics, where appropriate. Verbal informed consent was collected from all of the participants of the research.

Consent for publication:

Consent for Additional files 1-4 publication was received from the research participants.

Availability of data and materials

Audio and video recordings are stored on external disks belonging to the Institute of Ethnology and Cultural Anthropology, University of Warsaw held by the first author – Iwona Kaliszewska. The voucher specimens are stored in University of Warsaw Botanic Garden herbarium.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

Iwa Kołodziejska and Iwona Kaliszewska participated in the design of the study and conducted fieldwork. Both authors analysed the data and wrote the manuscript. Both authors read and approved the final manuscript.

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Additional Files

[Additional file 1:](#)

Showing the booklet. Patimat showing the booklet to her daughter-in-law. The photo was taken in September 2017 in Druzhba, Daghestan, Russian Federation. Author: Iwona Kaliszewska. (JPEG 505 kb)

[Additional file 2:](#)

Receiving the booklet. Hadijat, who has a vast amount of knowledge in plant collection was happy to receive the booklet but was not interested in the content. The photo was taken in September 2017 in Shiri village, Daghestan, Russian Federation. Author: Iwona Kaliszewska. (JPEG 492 kb).

[Additional file 3:](#)

Browsing the booklet. Fatima explains with gestures how *žibžni* (*Polygonum aviculare* agg.) creeps on the ground, her husband consults the booklet with her. The photo was taken in August 2017 in Makhachkala, Daghestan, Russian Federation. Author: Iwona Kaliszewska. (JPEG 355 kb)

[Additional file 4:](#)

Browsing the booklet. Brothers and father discussing all entries in the booklet. The photo was taken in August 2017 in Makhachkala, Daghestan, Russian Federation. Author: Iwona Kaliszewska. (JPEG 324 kb)

[Additional file 5:](#)

The “improper” booklet entries. Close-ups were usually not recognized, for ex. zveroboy (*Hypericum perforatum* spp.) on the left. Illustrations with plants abstracted from the environment for ex. *žibžni* (*Polygonum aviculare* agg.) on the right were viewed as wrong. (JPEG 204 kb)

[Additional file 6:](#)

The “proper” booklet entries. Illustrations of plants that were close to 1:1 or very characteristic were considered nice and proper. On the left *kaški gāgā* (*Fritillaria collina* Adam), on the right *amamura* (*Cerastium davuricum* Fisch. ex Spreng). (JPEG 273 kb)

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