A SURVEY OF TERMINOLOGY FACTORS RELATED TO AVALANCHE TRANSCEIVER USE

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ABSTRACT: A 15-question survey was disseminated to avalanche transceiver users of any experience level and in any country, including avalanche instructors, students, and winter backcountry travelers using a variety of travel modes, from March to July 2025. Distributed in cooperation with the UIAA Avalanche Working Group, the survey's goal was to identify the most universally accepted avalanche transceiver function terms from a global perspective that will be direct, concise, and effective during an emergent avalanche rescue situation. The survey focused on avalanche transceiver function terms (how/what a transceiver does), rather than on avalanche rescue terminology (such as signal, coarse, fine, pinpoint). This paper describes the results of the survey.

KEYWORDS: Transceiver, Search, Standards, Education, Rescue Training

1. INTRODUCTION

A 15-question survey was directed to avalanche instructors, students, winter backcountry-travelers, and anyone using an avalanche transceiver. Its goal was to identify the most universally accepted avalanche transceiver function terms from a global perspective to help being direct, concise, and easily understandable during an emergent avalanche rescue situation. This was undertaken to support the UIAA (Union Internationale des Association d'Alpinisme | International Climbing and Mountaineering Federation) Avalanche Working Group as they drafted UIAA Safety Standard 158.

The survey was drafted, reviewed, and tested prior to distribution. It was circulated beginning in March 2025 throughout U.S., Canada, and New Zealand. It was further circulated by members of UIAA Avalanche Working Group in June 2025 throughout participating European countries. In all there were 866 responses when the survey closed in July 2025. The survey was based on the following premises and assumptions:

- Uniform terminology supports global understanding.
- Avalanche rescues are stressful and sometimes confusing events; rescue training strives to simplify and standardize actions taken to support the successful application of these actions.
- Human factors should be taken into consideration when determining the standardized avalanche transceiver function terminology.

Caveats to the survey include:

- The responses represent a self-selected sample, i.e. those who chose to respond.
- It specifically focused on avalanche transceiver function terms (how/what a transceiver does) not avalanche rescue terminology (such as signal, coarse, fine, pin-point).

2. BACKGROUND

The original transceiver included instructions for use printed on it (Figure 1). Subsequently, transceiver manufactures used multiple words on the case to indicated the activity of the mode. Examples include Transmit, Senden, Transmission, Emission (Figure 2). Somewhere along the time line of transceiver innovation (during the adoption of digital transceiver technology), a choice was made by some manufactures to simplify the multitude of words to SEND and SEARCH while other manufactures made design choices to use abbreviations (examples in Figure 3).

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Figure 1. The original transceiver establishing use of the words "beacon", “transmit”, "search: all … on receive” "pinpoint", and "bracketing"; along with abbreviations “trans” for transmit and “rcv” for receive



Figure 2. Mid generation transceivers illustrating use of multiple languages on the unit.



Figure 3. Early digital transceivers with simplified labeling.

3. DESCRIPTIVE STATISTICS

In all there were 866 responses when the survey closed in July 2025. The demographics of the responses indicated a predominance of English speakers (Table 1 right side).

Available statistics for avalanche fatalities (see table caption for sources) provide a comparison of where incidents happened to the language spoken by the survey respondents (Table 1 left side). There is nothing to infer here since the language spoken by the unfortunates in the incidents is not known; it merely provides a perspective of the ranking of global accidents.

Those who responded reflected a group with a fair amount of experience practicing with a transceiver. 74% with more than 5 years and 56% with more than 10 years. This generally corresponded with how long they had owned a transceiver (only 3 respondents did not own a transceiver). Remarkably, 21% (189 responses) indicated they had performed a rescue using a transceiver.

Table 1. Recent reported avalanche fatalities and the primary language spoken at home of the survey respondents. (Sources for fatality values: https://avalanche.org/avalanche-accients/; https://www.avalanches.org/fatalities; https://incients.avalanche.ca/statistics; https://www.mountainsafety.org.nz/explore/monitoring-safety-incidents/avalanche; https://data.nadare.jp/incidents; all accessed 2026-07-30)

1272 Reported avalanche fatalities from seasons 2017/18 - 2025/26		Primary language spoken at home of survey respondents	
United States	17.1%	English	70.7%
France	16.4%	Deutsch	4.5%
Italy	15.2%	Română	3.4%
Switzerland	14.3%	Español	3.0%
Austria	11.8%	Svenska	3.0%
Canada	7.2%	Français	2.7%
Norway	4.4%	Unk	2.3%
Japan	4.2%	Italiano	1.6%
Slovakia	2.4%	Català	1.5%
Spain	2.0%	Norwegian	1.3%
Romania	1.3%	Dutch	1.1%
Germany	0.8%	Hrvatski	1.0%
Poland	0.6%	Hungarian	0.7%
Slovenia	0.6%	Slovak	0.5%
NZ	0.6%	Czech	0.3%
Andorra	0.2%	Persian	0.3%
Czechia	0.2%	Türkce	0.3%
Finland	0.2%	日本語	0.3%
Iceland	0.2%	Croatian	0.2%
Sweden	0.2%	Finnish	0.2%
United Kingdom	0.2%	Icelandic	0.2%
China	0.1%	Magyar	0.2%
Australia	0.0%	Slovene	0.2%
Liechtenstein	0.0%	Georgian	0.1%
		Serbian	0.1%
		Skandinavian	0.1%

Knowledge and awareness of the UIAA were captured in two questions (Figure 4). Over half were aware that English was the standard language for a UIAA safety label (question 9) while nearly the same percentage didn’t know or were neutral on whether a UIAA safety label was useful or valuable for transceivers (question 14).

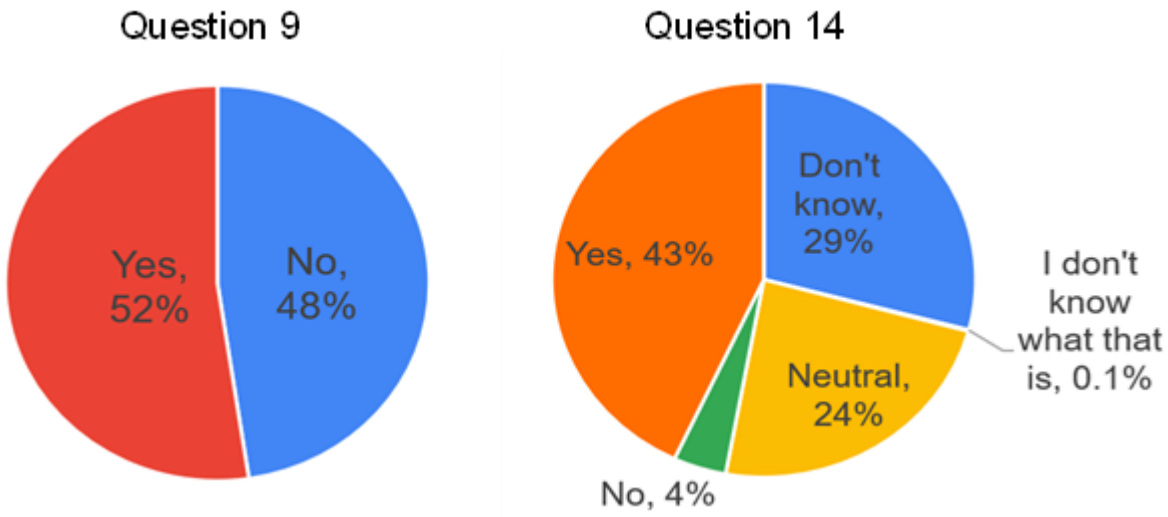


Figure 4. The survey results regarding knowledge and awareness of the UIAA.

4. THEMES

A core topic of the survey was to seek information around the use of Transmit, Receive, Send, and Search. This was investigated through a number of questions. The first regarding people's general confusion when it came to transceiver function terms. 28% of responses whose primary language is English expressed confusion between terms (Figure 5).

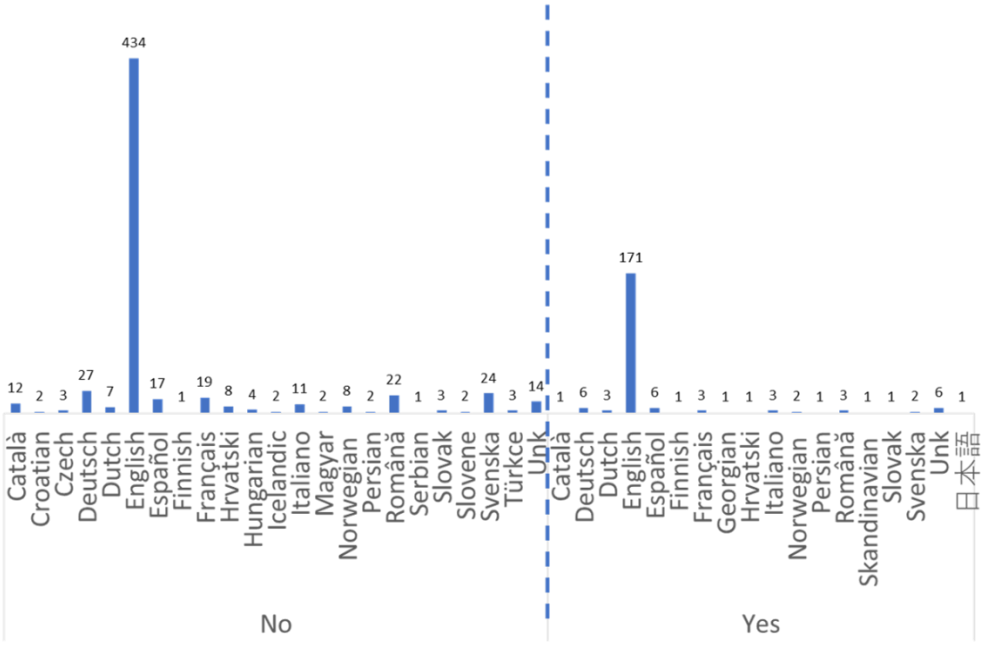


Figure 5, The distribution of answers to question 7. As a transceiver user, have you ever been confused by the avalanche transceiver function terminology (such as send versus transmit)?

Even though detect, find, go, hunt, is the transceiver ok, listen, locate, look, receive, recerca, rescue, and søk were all suggested as answers to the question: “What is the best word (English or otherwise) for using an avalanche transceiver to find a buried companion with another avalanche transceiver?”; SEARCH was the clear choice (Figure 6) of 94%.

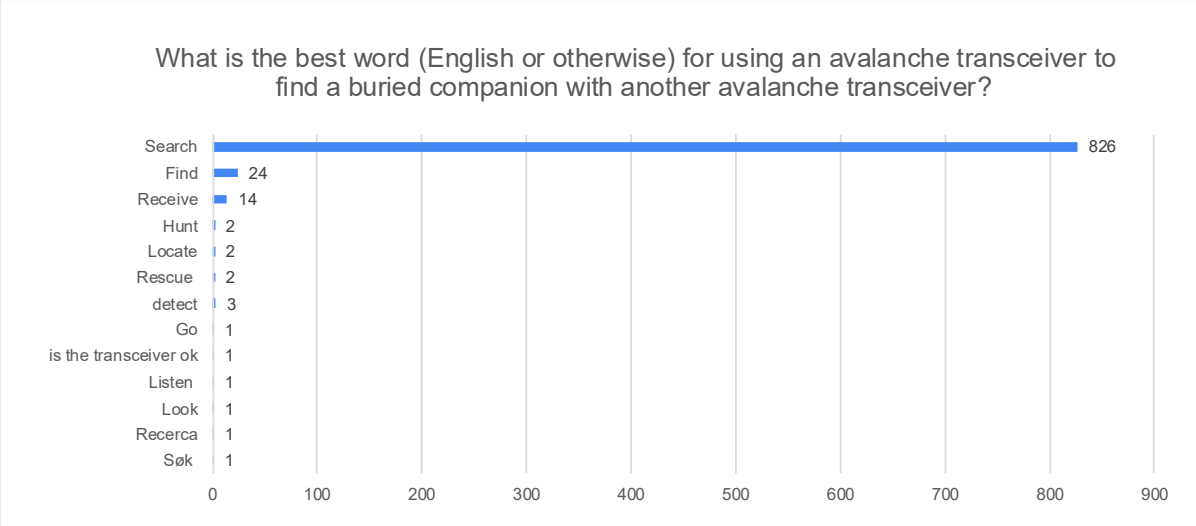


Figure 6. Responses to what word best describes using an avalanche transceiver to find a buried companion with another avalanche transceiver.

The greatest divergence in answers was in question 11, “What is the best word (English or otherwise) for using an avalanche transceiver to emit a signal in case you are buried in an avalanche and someone is coming for you?” The suggestions included beep, broadcast, emisión, émission, emit, find me, on, rescue me, send, signal, SOS, and transmit. “Transmit” was the preferred term (52.3%) by responders whose primary language is English for using an avalanche transceiver to emit a signal in case you are buried in an avalanche and someone is coming for you (Figure 7). For respondents whose primary language is not English, “Send” is preferred.

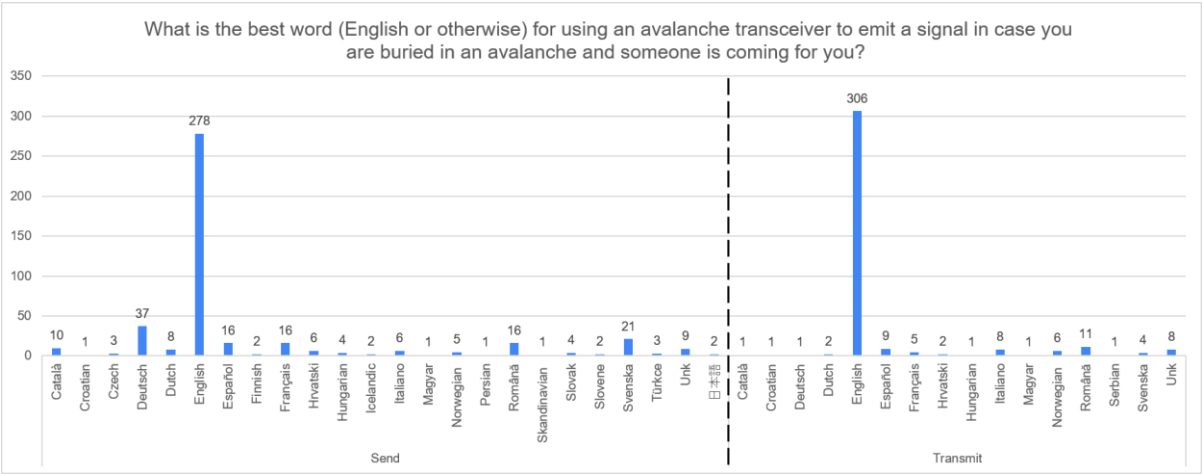


Figure 7. Distribution of SEND versus TRANSMIT by primary language spoken.

One of the best learning opportunities from the survey are in the examples of various misunderstandings or confusions that were described in the comments.

Answers to question 7 “As a transceiver user, have you ever been confused by the avalanche transceiver function terminology (such as send versus transmit)?” highlighted the desired clarity in communication through examples of shortcomings and brand differences as outlined in the following:

- mostly when communicating with people who have different transceivers
- mostly it was just a case of getting the term mixed up in my head for a second

- in speaking about them, yes frequently (mixing up terms by accident)
- send vs transmit is confusing, and then send and search both sound similar with the "s" and if they're marked with an "s" on the beacon I have to think hard each time

A theme pointing out the issues of SE having two meanings was supported with many comments like this one:

- yes. It is dumb that SEND and SEARCH are used (both SE). We should use transmit and search or something like that...

A critical and widely evident theme captured how confusion is magnified at the point of instruction or education as seen in these selections:

- more than confusing, it was great effort to try to teach the function with the different transceivers, and different functions names
- I teach avalanche classes and students are confused by this all the time
- this is confusing when teaching courses
- no, however as an instructor, I have seen students confused
- no but my students have
- it's more confusing to teach beginners, they confuse 'send' with 'search' and 'transmit' with 'track
- yes, whilst instructing - the terminology is not intuitive
- as an educator, I have not. But my students definitely are

Language is an obvious theme as shown in these two answers:

- especially with flipping between French and English
- send, transmit (en español trasmisión, emisión y recepción, busqueda)

There may be additional relevance here when looking at the national ranking of fatalities (France is number two and an unknown component of the Canadian count could be included here.)

A last important theme was confusion generated by variations between manufactures in features beyond those of transmitting, receiving, and directing actions (searching). Non-uniformity of multiple burial and flag functions were mentioned repeatedly.

Answers to question 12, "What are your thoughts about using symbology for the functions?" provided an interesting perspective. Interestingly, many demonstrated a lack of recognition of example symbology such as "I don't understand the meaning of the Flag symbol". There was consensus that words were needed with the icon, fundamentally negating the advantages of icons. Examples of symbology were provided as part of the question (Figure 8). The select comments below provide a good representation of the confusion and thoughts on practicality symbols might provide. For many "good because" comments there was a countering "bad because" for the same idea, example: "some of us need reading glasses so symbols need to be big" versus "I like them because I use reading glasses and I can see those without glasses".

- [the] flag is not clear, especially in a situation of 3+ victims
- bad idea because the word association with the symbol will work against your mission to achieve a common language to describe the process
- using English for everything is colonialism's legacy
- [suggest] rescue/red cross signal with a 1,2,3 etc. to help keep multiple victims organized
- hard to see, particularly on a screen
- as an English speaker I will admit the words are easier to remember
- I don't always look at the symbology on the screen of the beacon but mainly look at the physical switch that goes from search to send
- I'm a graphic designer so I naturally think visually, however a word is often more universally clear versus an image or symbol, which can be interpreted differently by different folks. A symbol has the advantage of transcending different languages, but only if it's exceptionally clear.
- I do not think this is helpful because we still need to talk about it and we can't talk in symbols
- on/off symbols are confusing for dyslexia
- I think it leaves a lot open to interpretations if there are no words present like in the three symbols on the right
- I think that words should be included as well as the three first symbols. But then is it really necessary to have symbols?

- these symbols remind me of laundry washing instructions, which send me to the internet every time I want to make sure I get the settings correct



Figure 8. The symbology examples provided in survey question.

5. CONCLUDING THOUGHTS AND LIMITATIONS

Establishment of the UIAA safety label lies with the working group. The themes and summary of the survey have been shared and discussed during the regular meetings. In the end, the safety label will be a result of collaboration and contribution by working group members in line with the UIAA process.

Considering English is the UIAA standard language, the mountaineering world is full of examples of words from various languages being adopted nearly universally such as belay. I cannot think of a valid argument that a word can't be used because it doesn't exist in another language.

A review of current manufactures' websites in various languages shows no issues in translation; however, an agreed lexicon of recommended translations would support better standardization.

A prime goal of the survey was to identify sources of confusion when communicating about avalanche transceivers. Confusion was identified, specifically around the terms describing the transceiver's default function of transmitting a signal. Additional confusion was described relating to uniqueness and non-standardization of transceiver model functions.

One must acknowledge the multitude of indirect or secondary effects on manufactures with standardization of terminology for the use, training, and practice. Changing SEND to TRANSMIT would be a big ship to turn with cost and timing ramifications.

Consensus of opinion in-line with the strong support for SEARCH (>94%) would provide clear direction in reducing uncertainty associated with a critical avalanche safety activity. Posing the question, "Does the potential for confusion exist for new users, trainers, individuals and groups actively engaged in an avalanche rescue if the standardized terms are TRANSMIT & SEARCH?", contrasted with the answer to the same question regarding SEND & SEARCH is the next step.

ACKNOWLEDGEMENTS

I am grateful for the time, effort, knowledge, and sharing of experience by the responders to the survey, without which there would be nothing to share here. A special thank you and acknowledgement to the survey responders who contributed many thoughtful comments. Only a few illustrative ones have been included in this paper, the complete set were available to the working group members. I am also grateful to the UIAA Avalanche Working Group and its chair, James Marc Beverly for their ongoing commitment to improving avalanche safety.

SURVEY QUESTIONS

1. How long have you been practicing avalanche rescue skills?

2. What is the primary language you use at home?

3. In what country do you do winter backcountry travel the most?

4. Do you own an avalanche transceiver?

5. If yes, how many years have you owned it?

6. Have you ever had to perform a rescue using a transceiver?

7. As a transceiver user, have you ever been confused by the avalanche transceiver function terminology (such as send versus transmit)?

8. Have you participated in a course that included instruction on avalanche transceiver use?

9. Were you aware that English is the standard language worldwide for UIAA safety labels?

10. In your opinion, what is the best word (English or otherwise) for using an avalanche transceiver to find a buried companion with another avalanche transceiver?

11. In your opinion, what is the best word (English or otherwise) for using an avalanche transceiver to emit a signal in case you are buried in an avalanche and someone is coming for you?

12. What are your thoughts about using symbology for the functions?

13. What is the primary travel mode you use in the backcountry?

14. Do you feel the UIAA safety label (intended for mountaineering use) is useful or valuable for avalanche transceivers?

15. Is there anything additional you would like to add?