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RESEARCH ARTICLE



University responsible research and innovation and society: dialogue or monologue?

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ABSTRACT

University social responsibility requires dialogue with society and university activity. In the case of responsible research and innovation, this can involve interacting with society, listening to its needs, promoting its development and strengthening its capacity for autonomous progress. But does this dialogue actually take place? The aim of this paper is to describe the current state of communication between researchers and the stakeholders in university research. The study is based on a content analysis of interviews with 107 research groups in five European countries. The results point to four dialogue models, from the absence of communication to the consensual and symmetrical dialogue, a clear minority in the study sample. The arguments researchers give lead us to conclude that the way they understand research prevails over social responsibility. Finally, we present some strategies which could be used to promote a change of perspective towards socially responsible research.

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social participation;
dialogue; interview; RRI

Introduction

Research is one of the ways in which universities can interact with society. In order to develop responsible research and innovation (RRI), the relationship between researchers and citizens should be based on the needs of society, its development and improvement promoted through two-way interaction that empowers it and strengthens its capacity to advance autonomously (Larrán-Jorge and Andrades-Peña 2015).

Crane and Livesey (2003) examine the relationships between these interested parties through the lens of communication relationships, in which dialogue is understood as an organised or planned two-way action that should be integrated into policies and activities at the organisational level.

The study of dialogue between interested parties is often grounded in Habermas's theory of communicative action. In his writings on discourse ethics and deliberative democracy, Habermas distinguishes between communicative and strategic action,

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which helps us understand the conceptualisation of dialogue between research groups (RG) and stakeholders (SH). He considers communicative action as a situation in which ‘actors are prepared to harmonise their plans of action through internal means, committing themselves to pursuing their goals only on the condition of an agreement [...] about definitions of the situation and its prospective outcomes’ (Habermas 1990, 134). He contrasts communicative action with strategic action, in which the actors influence each other through external means: [If] the actors are interested solely in the success, i.e. the consequences or outcomes of their actions, they will try to reach their objectives by influencing their opponent’s definition of the situation, and thus his decisions or motives, through external means by using weapons or goods, threats or enticement. Such actors treat each other strategically (Habermas 1990, 133).

Although Habermas makes a sharp distinction between communicative and strategic action, he recognises that strategic action, and the combined forms of strategic action and communicative action, can arise in the real world. This idea is picked up in Blok (2014) and later in Brand, Blok, and Verweij (2019) who instigate an interesting debate on two types of dialogue between the interested parties: ideal dialogue and instrumental dialogue. In ideal dialogue the participants reach a consensus on how to construct a shared view on a societal issue (Blok 2014; Golob and Podnar 2014; Patzer, Voegtlin, and Scherer 2018), whereas in strategic or instrumental dialogue, the participants do not pursue agreement as a worthy end in itself, but try to influence others to further their own ends (Blok 2014; Crane and Livesey 2003). In line with Brand, Blok, and Verweij (2019), we consider that dialogue between RG and SH lies on a continuum from one-way communication involving instrumental dialogue that pursues the benefit of one of the parties, to a more responsible, two-way form of communication based on dialogue and consensus. We believe this type of dialogue is important to steer the results of this study, insofar as it recognises the need to change the relations of power and seek real conditions for a more egalitarian and less hierarchical dialogue. Therefore, Habermas’s discourse ethics provide an ethical framework for research based on justice and equity (Habermas 2000), by establishing relationships between RG and SH based on principles of honesty, inclusion, reciprocity, and symmetry (Fernández-Beltrán et al. 2017). This framework relates RRI to the model of deliberative democracy, in which participation is central, and the assumption is that science and technology must be submitted to the consideration of all affected parties, who require knowledge for dialogue in order to take action autonomously and freely (Cortina 2007).

It is from this dialogic perspective of communication that we approach the relationship between RG and SH, which aims to overcome the deficit model (Bauer, Allum, and Miller 2007) from a deliberative model of critical public understanding of science that considers the contextual complexity of the relationships between science and society, by emphasising how knowledge is used socially and acknowledging citizens’ agency as active agents in knowledge mobilisation (Horst 2008; Horst and Michael 2011). Therefore, the ideal dialogue (deliberative dialogue) focuses less on seeking consensus than on creating the conditions for a productive exchange of perspectives in conflict, thereby generating spaces for negotiation and suitable participation strategies (Horst and Irwin 2010).

Therefore, inclusive responsible research (IRR), as an emerging concept, emphasises the ethical component of the relationship between RG and SH in terms of

communication and participation (Powell, Davies, and Nutley 2018; Vance Lee and Kelly 2017). Researchers must ensure participants are included in the research process (de Saille 2015; Dima 2015), so that citizen participation in accessible methodological approaches and dissemination of results that engage with a diverse range of perspectives and voices are taken into account (Ribeiro et al. 2018; Thomas 2015). This inclusive perspective of responsible research is oriented to a collaborative culture and social engagement (Koch 2020; Mejlgaard et al. 2019; Miotto, González, and del Castillo Feito 2018; Walmsley, Strnadová, and Johnson 2018), democratic research practices (Alba and Nind 2020; Dabars and Dwyer 2022; Lozano and Monsonís-Payá 2020; Skipper and Pepler 2020), and social transformation based on knowledge mobilisation, characterised by the shared construction of knowledge through dialogue and equal relationships (Labbé et al. 2020; Latas, Raposo-Rivas, and Martínez-Figueira 2016; Powell, Davies, and Nutley 2018; Vance Lee and Kelly 2017), beyond the mere dissemination and transfer of results (Naidorf and Perrotta 2015).

Thus, an instrumental dialogue would entail a hierarchical interaction between RG and SH, whereby control over research continues in the hands of academics, and power relations are asymmetrical. SH's needs are heard, but they do not take decisions in the research process. This participation, which is also instrumental, would then be at the service of academic and scientific objectives, and not of citizens. On the other hand, a deliberative dialogue that negotiates meanings and objectives shared between RG and SH in a research context would be associated with a more inclusive type of participation, enabling SH to make decisions, democratising the research process, and oriented to social transformation, thereby raising the levels of citizen agency, control, and power (Arnstein 1969; Latas, Raposo-Rivas, and Martínez-Figueira 2016; Sales et al. 2022; Skipper and Pepler 2020).

When we apply these two dialogue types to the field of university research, they can be associated with the two main existing research types according to their purposes:

- Basic research, from the perspective of intent, solves general problems that help to solve other problems in a specific area (Calvert 2006), suggesting a low level of communication outside academia.
- Applied research solves these specific problems and by necessity must entail communication with society beyond academia.

The literature on RRI in Europe points to greater resistance and objection to public engagement for basic research institutions and researchers than for those in the applied sciences or practice-driven fields (Carrier and Gartzlaff 2020).

The relationship between communication and participation in university research established in this study has led us, as concerned researchers, to consider the following: How are the relationships between RG and SH? Are they genuinely characterised by a deliberative dialogue that encourages more responsible and inclusive research? This is the question behind this study, which is framed within a wider European project that aims to describe the strategies used by RG to mobilise the knowledge generated in their research projects.

Objectives

In light of the above, the main aim of this study is to examine the types of communication established between the parties involved (RG and SH) according to SH participation throughout the research process. As a second aim, we analyse whether there is a relationship between these types of communication and the two types of research: basic and applied.

Methodology

The study adopts a combination of methodologies (Bericat 1998), principally qualitative methodology based on semistructured interviews (Valles 2007) with RG from five universities in five European countries (Austria, Slovenia, Spain, Romania and Serbia).

Sample

Our initial intention was to interview 150 RG (30 from each of the five participating countries), selected with the non-probability quota sampling technique (Kalton 1983), taking into account the area of research according to the five knowledge groups defined in Spanish Royal Decree RD1393/2007 (arts and humanities, engineering and architecture, health, sciences, and social sciences and law) and type of research (basic or applied). However, this selection proved difficult due to the research conventions in these areas. For example, in the sciences we were unable to find groups doing applied research, whereas in engineering, the problem lay in finding groups doing basic research. Furthermore, because saturation was reached at 70 responses, after which no new relevant information was obtained for the research purposes of the project, and due to the difficulty of establishing suitable contacts as a consequence of Covid-19 pandemic lockdowns, we decided to halt the process once 107 interviews had been carried out (13 in Austria; 14 in Romania; 30 in Serbia; 15 in Slovenia; and 35 in Spain). These interviews provided sufficient representation in all areas and types of research. Table 1 presents the final selection.

Data gathering

The interviews took place between October 2020 and October 2021; they were conducted and recorded in the interviewees' own language, although each interviewer¹ prepared a detailed summary in English for every answer, including, for each question, illustrative quotes that provided explanations and justifications from the RG's perspective, the

Table 1. Sample distribution by area and type of research covered in the interviews.

Area	Type		Total
	Basic	Applied	
Arts and humanities	3	6	9
Sciences	10	3	11
Social and legal sciences	14	18	32
Engineering and architecture	9	34	43
Health	3	7	10
Total	39	68	107

SH's level, and type of participation in the research. These summaries were later used to analyse the results. The interviewers contacted the RG coordinator, either through each institution's RG register or the interviewers' own contacts when it was not possible to contact through the registry and arranged an appointment for the interview. The coordinator, or another person from the group with sufficient background experience, attended the interview, which was structured in two parts (Ferrández-Berruenco and Sales 2023). In the first, the context of the research was established through their descriptions of their research topic. Basic information to identify the group was also collected: number of researchers, how long the group had been running, type of research, and area. In cases where interviewees worked in different areas or types of research, we asked them to give responses about a single project that they considered most representative of their way of working and understanding research. In the second part, interviewees were asked about stakeholder participation in each stage of the research process (participatory perspective) and the reasons why this participation had been sought (ethical perspective) (Ferrández-Berruenco and Sales 2023).

Regarding ethical requirements, this research has been developed in accordance with the principles of the Declaration of Helsinki for research involving human subjects. All participants were informed of the aim and characteristics of the research and the conditions were agreed. They signed informed consent aligned with the guidelines of the Ethics and University and Social Responsibility Committee of the University Jaume I. The ethical issues of confidentiality and anonymity were considered and the results were returned and discussed at two points: after the interview and with the final results. Participants also agreed to the conditions for their dissemination. Finally, all the results and reports are available open access on the Erasmus Results Platform and on Zenodo, a general-purpose open-access repository developed under the European programme OpenAIRE. However, we have no approval number. When the project started, the university did not require a statement of whether or not the research used biological samples or personal data.

Data analysis

The initial quantitative analyses, based on the indicator scores (Ferrández-Berruenco et al. 2023; Ferrández-Berruenco and Sales 2023), showed clear statistical differences between basic and applied research, though not by knowledge area. That is, for any of the considered fields (arts and humanities, engineering and architecture, health, sciences, and social sciences and law) the difference in SH participation is only manifested when we consider the type of research with applied research being more participatory than basic research. A cluster analysis using SPSS statistical software also revealed four research profiles, according to whether the RG allowed and/or facilitated SH participation. We labelled these profiles as follows: Isolated, Disseminator, Transfer, and Inclusive (Ferrández-Berruenco and Sales 2023). We then conducted a thematic content analysis (Paillé and Mucchielli 2012), in order to meet the objectives of this study. After that, the data were reduced and interpreted through deductive categorisation, which was initially based on the relation between communication and participation types: instrumental dialogue and participation; and deliberative dialogue and inclusive participation. Subsequently, the presence of sub-categories referring to barriers that hindered this deliberative dialogue was considered.

Results

The units of meaning for the presentation of results were codified as follows: country of origin (SP = Spain, AT = Austria, RO = Romania, SL = Slovenia, and RS = Serbia), followed by the interview number, research area (A = arts and humanities, L = social and legal sciences, E = engineering and architecture, H = health, and S = sciences), type of research (B = basic and A = applied), and, finally, the number of researchers in the RG. Thus, for example, SP05AB9 refers to Spanish interview number 5, corresponding to an arts and humanities RG conducting basic research with nine researchers.

Types of communication established between the parties involved according to SH participation throughout the research processes

Table 2 and the line graph in Figure 1 display the behaviour of RG vis-à-vis SH participation throughout the research process for each of the profiles revealed by the cluster analysis. The horizontal axis shows the stages of the research process, and the vertical axis shows the type of participation according to the indicator scores. However, for correct interpretation, taking into account that the indicator scores are measured at an ordinal level (i.e. they are not precise), it should be noted that the oscillations of the scores on each line (x-axis) are not relevant other than when they mark a change within the level of participation (y-axis).

The figure reveals a clearly differentiated pattern for each of the researcher profiles that could be linked to the type of SH participation throughout the research process:

- Isolated: (23.4% of the cases). SH do not participate actively at any point during the research. The indicator scores (orange line) always remain below the lower range of the graph, that is, between ‘no participation’ and ‘instrumental participation’, without ever reaching this second level. These RG are characterised by their predominant concern for the scientific impact of their research results.
- Disseminator: (31.8%). SH do not participate actively at any point during the research, but the RG strive to inform the wider society about their results in various ways. The indicator scores of these RG (blue line) in Figure 1 clearly show very similar behaviour to the previous profile, with the exception of the dissemination phase where these groups communicate or care about interaction with SH, using different dissemination channels.

Table 2. Level of SH participation in each research phase for each researcher profile (according to the score on the indicators. Minimum value: 2. Maximum value: 6).

Indicator	Profile			
	Isolated	Disseminator	Transfer	Inclusive
Problem	2.52	2.47	5.06	5.71
Design	2.72	2.38	2.56	5.50
Data gathering	2.60	2.91	3.03	5.79
Data analysis	2.52	3.03	3.12	4.86
Dissemination	2.40	2.74	4.85	5.00
Channels	2.36	5.47	5.26	5.79
Exploitation	2.96	3.62	3.79	4.07

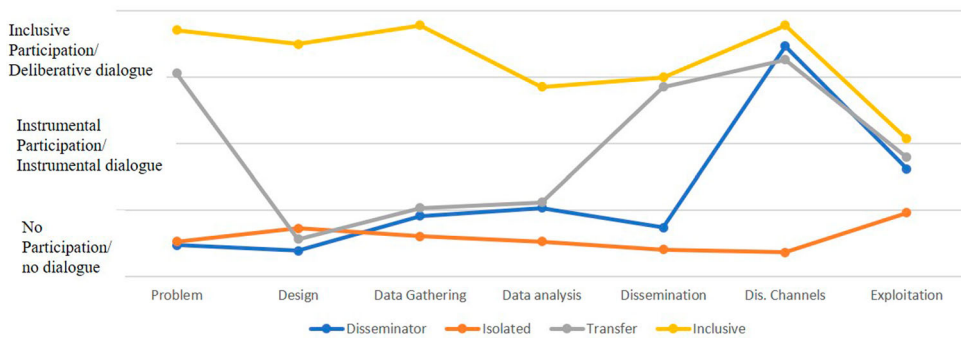


Figure 1. How and when SH participate in the research process according to the RG profiles.

- **Transfer:** (31.8%). Although behaviour is similar to the two previous profiles in the central phases of the research process, this case shows how SH participate actively in defining the research problem and analysing the results (grey line in Figure 1). In this profile, the RG are usually commissioned by these SH (normally public or private bodies) to find solutions to concrete problems identified by the SH. This would explain why the type of participation observed is hierarchical, as well as the predominance of asymmetrical power relations.
- **Inclusive:** (13.1%). SH participate more actively in decision-making at every stage in the research process. Although this participation is not fully inclusive, since this level is not reached at any stage, the yellow line is evidently always higher when compared with the other profiles, especially during the phases of the research process itself, which means more interaction with SH.

In the second step, the content analysis revealed different types of communication and dialogue in each profile associated with that participation:

(1) No communication

Predominant in the Isolated profile. The researchers interviewed defined their research problems within the group, sometimes out of curiosity: ‘In principle we don’t consider whether the application [of the research problems] is so important or not. Sometimes we do wonder if they are relevant in a way that comes closer to how they are applied and so on, and we try to go in that direction, but it isn’t a determining factor’ (SP31SB3).

At other times, especially in applied research, problems are detected through analysis of the media or reading institutional reports (AT09LA12).

Logically, the research process takes place within the RG themselves, as it is the RG that design the research, gather and analyse the data, and draw conclusions that are mainly disseminated in the academic sphere, either because the researchers consider the problems to have no social relevance (AT01SB12), or because they think it is not part of their role to offer SH a more useful service, as one interviewee from the health area commented: ‘It has come to our attention that they would like to be told how to use that information [...], but we can’t provide that service’ (SP11HB4).

Analysing the responses through the lens of (no) communication with SH shows that the researchers interviewed refer to general aspects of the research. Once again, we find a slight difference in the arguments put forward by the basic research groups, such as their failure to define the SH they are dealing with: ‘[...] What happens is, of course, this stakeholder needs to be identified so there aren’t any problems [...] because the mechanism for including them directly isn’t automatic in our case’ (SP22SB15); or that the objective of the (basic) research means they need not take the SH into account because that is not their aim in the research (SL13AB11); or because they have nothing to contribute to the project: ‘They could be informed during the process, but they wouldn’t contribute anything to the project’ (SP15SB2); or because the RG anticipate problems: ‘We try to get ahead of the problem a little’ (SP19EB12); or because the SH themselves do not want to participate, as was mentioned in some comments: ‘It would make sense, but obviously participating in a project isn’t just about observing; it’s more than that: participating, getting involved, providing some resources [...]. But it’s very difficult to involve them’ (SP33EB12).

The respondents claim that the absence of communication is due to obstacles, such as lack of time (RO12LA3), and of expert knowledge and experience in the subject matter (RS01LB5).

Others identify the way research is evaluated in terms of scientific impact as the main barrier or impediment behind the decision not to communicate with the SH: ‘As lecturers, we are evaluated on the basis of our published research, etc. And that’s where you dedicate most of your efforts. Contacting stakeholders, companies, and so on, often takes up a great deal of time and effort that isn’t going to add anything to this [the research]’ (SP08EA15).

In other words, from the perspective of the dialogue they establish, this profile can be identified as ‘no communication’ because SH are not taken into account; these researchers do not consider the possibility and very often have no clear definition of who the SH are.

(2) Monologue

The monologue approach coincides with the Disseminator profile, in which the researchers establish the research problem, as in the previous case, on the basis of the scientific literature (RS21EA4): ‘Well, based on either the problems that arise due to new legislation, environmental problems you’re aware of, [...] and the scientific literature’ (SP06SB20), or on problems that interest and motivate the researchers themselves (SL05LB6): ‘They are topics that drive me. They excite me because I believe they are questions of justice’ (SP12AA8).

Nonetheless, the interviewees in this profile are more aware of the need to engage with society in general and their SH in particular, although what takes priority is meeting the demands of national and international funding calls (RO09EA6).

These researchers also seem to be aware that a participatory culture is lacking on both sides. The representative of a big RG in the basic science area said: ‘We are often very distanced; they don’t know what we do, and we (I mean the research groups in the

university), we are open or we come from a position of knowing that we have to move outside [the university]' (SP06SB20).

They also mention the effect of research evaluation (SL07EB4), which only considers scientific impact: 'If nobody asks you to do it, raising awareness about something you're not asked to do when what they do want from you is a scientific paper published in high impact journals, that you belong to research projects, etc., then in truth, that's what you get on with doing' (SP30LB5).

An analysis of the responses through the lens of interaction and dialogue reveals a strong perception of resistance from SH. In contrast to the previous profile, this derives from a prevalent awareness in this group of the need to engage with stakeholders: 'Feeding back the results of our research is not just a moral and social obligation; it also gives meaning to our projects' (SP17HA7), even if SH do not directly collaborate in producing the knowledge: 'I have to deliver that knowledge and make it public and try to ensure it reaches as many people as possible, but from there to getting them involved is very difficult because they have a lot of work and responsibilities. I have to make their life easier, not more complicated' (SP30LB5).

And to do that RG use all the communication channels available to them, as the representative of a small RG in applied arts stated: 'Disseminating to society is what we've committed to because these projects are funded with public money, so we have to disseminate [the outcomes] to other centres, the Council, in press conferences, wherever we can' (SP12AA8).

Regarding the central part of the research process, their arguments are similar to those of the previous profile on questions of experience (RS24HA12) and lack of time (SL07EB4), as summarised succinctly in this comment: 'Designing research calls for expert knowledge because of the tight deadlines we face' (SP30LB5).

In sum, although the research problems are not raised by the SH, but come from researchers' knowledge, the researchers interviewed know the SH they must deliver their results to and that it is a one-way exchange. This type of communication can therefore be defined as a 'monologue' in which researchers pass on their results, but apparently with no two-way communication.

(3) Instrumental dialogue

Associated with the Transfer profile. In this case the SH come up with the research problem as they commission the RG's services (RS15EA8), both in applied ('We understand that the actors, those who suffer [...], these people need to be listened to and we have to take their criteria into account' (SP27AA1)) and in basic research, although researchers doing basic research prefer to remain relatively independent (AT06SB14).

From the perspective of dialogue and communication, although the core part of the research process usually stays within the RG, the interviewees establish some contact with the SH (SL12SA5), for example, to ask their opinion: 'Once we have gathered the data, we give them the chance to express their opinion' (SP27AA1). However, decision-making practically always falls to the RG (RS30EA4): 'The intention is to align the research design with the SH's circumstances, and sometimes even incorporate their decisions' (SP26LA7).

Differences also appear in terms of dissemination, either because the research is published separately (RO02LA24), or because SH are mentioned as participants: ‘We publish, but participants in the research are mentioned in recognition of their participation’ (SP14HA4), but roles are not often combined.

The researchers interviewed belonging to this group perceive the lack of participatory culture as one of the main barriers to a more egalitarian participation: ‘There’s a kind of stereotype that judges and lawyers don’t read and that we have no idea about because we work on ‘laboratory’ hypotheses. But we don’t get out onto the streets, and we have no idea of law in the real world’ (SP01LB4).

We also found barriers in the SH’s lack of interest in participating directly and actively (RS13EA5), lack of time (SL02EA30), and the way research is evaluated (RO03LB14). In this sense, a senior researcher from the business and law area said: ‘[...] This means that when you’re waiting for promotion, you submit papers to impact journals, even though you actually know that the potential readers of the research [...] read specialised journals that are not on the list of impact journals’ (SP01LB4).

There is yet another set of barriers – bureaucratic barriers (AT04EA10) – that hinder participation on equal terms. For instance, the same interviewee from the business and law area said: ‘It makes no sense that people from outside the institution can’t join the research group, and this prevents the group from becoming stronger’ (SP01LB4).

In sum, analysis reveals the existence of dialogue between the two parties. However, the dealings between them expose a hierarchical, asymmetrical, and/or power relationship, which could either come from the researchers’ side, as the individuals who establish the rules, or from the SH, when they commission a service, for example. This model is therefore one of instrumental dialogue.

(4) Deliberative dialogue

This coincides with the Inclusive profile, the smallest in number of the groups interviewed, all of which undertake applied research. The research problems emerge from interaction with SH (RO10EA10). Because the methodologies used by these RG (e.g. participatory action research) involve the SH throughout the process, they can maintain constant contact, take decisions, and make proposals on equal terms: ‘Everyone the project was addressed to was a necessary part of it’ (SP24LA3). Dissemination is also adapted to and shared with the target audience (RS14EA5): ‘We take part together in conferences, in publishing books [...] If they’ve participated in the whole process, they also belong in the dissemination process’ (SP28LA8), because they are co-owners of the results (AT08EA12).

On the question of dialogue, the researchers perceive no communication barriers other than those related to sensitive data (RS17EA10). If a problem arises, they accept it as part of the process, as one of the interviewees in this group stated: ‘It’s sometimes difficult to reach an agreement between the two parties, but that’s part of the process. It’s something that we take on board in the process’ (SP24LA3).

In sum, the communication that interviewees in this profile have with their SH is more similar to a deliberative dialogue, in which a symmetrical power and peer-to-peer relationship is established with the interlocutor.

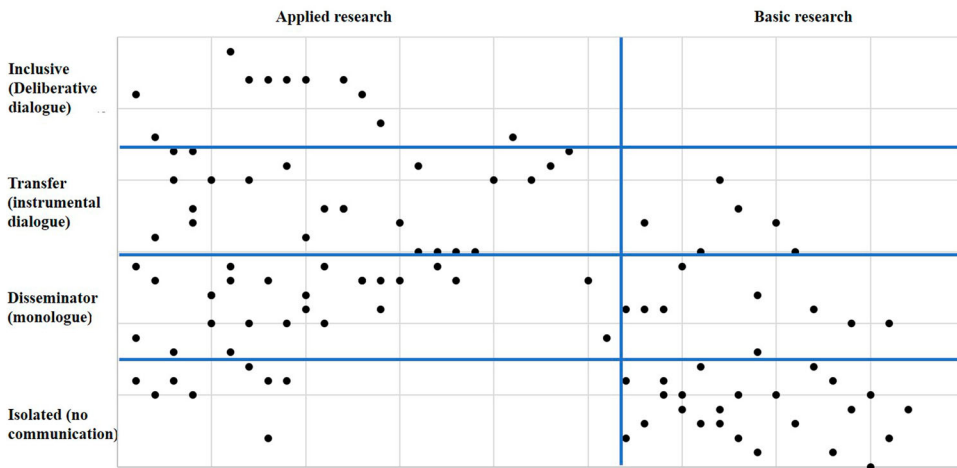


Figure 2. Scatter plot showing the distribution of the researchers, according to type of research and proposed dialogue type associated with their profile.

Table 3. Counting of RG according to type of participation and dialogue with SH.

Area	Type		Total
	Basic	Applied	
Isolated (no communication)	24	8	32
Disseminator (monologue)	9	24	33
Transfer (instrumental dialogue)	6	25	31
Inclusive (deliberative dialogue)	0	11	11
Total	39	68	107

Relation between types of communication and types of research: basic or applied

The scatter plot shown in Figure 2 and Table 3 reflects the distribution of the RG’s indicator scores, according to profile/dialogue type and the type of research they carry out.

The figure shows a notable concentration of the basic research groups in the lower part, whereas the applied research groups tend to be concentrated in the upper

Table 4. Potential strategies for improving the conditions for a deliberative dialogue.

To improve	Potential strategies
Social commitment	<ul style="list-style-type: none"> Higher education institutions and research groups should promote responsible and committed research seeking practical solutions to contextual needs.
Relations between RG and SH	<ul style="list-style-type: none"> Universities should facilitate and recognise certain interest groups as collaborators or members of research groups.
Participation	<ul style="list-style-type: none"> Researchers should recognise the knowledge, insights and viewpoints of stakeholders. To favour research spaces or environments that are natural for the participants, in their profile and daily professional tasks that encourage dialogue and negotiation. Generate indicators that make it possible to monitor the quality of research in relation to the context and the process, and that these are, at the same time, permeated by participation and emancipatory ethics. Streamline the bureaucratic processes for raising funds for research and for obtaining permissions from the ethics committee.

section, albeit most densely in the middle categories. We can deduce from this that the groups working on basic research, in many cases, do not communicate with their SH and, where communication does exist, it is mainly one-way during the dissemination stages of the research process. In contrast, groups carrying out applied research tend to have more contact with their SH, although the one-way communication model appears to prevail [Table 4](#).

Discussion and conclusions

In the context of responsible research and innovation (RRI), with its emphasis on the need/obligation to engage in dialogue with society to ensure research meets the real needs of society's SH, the results obtained in this study seem to suggest that, far from fulfilling these obligations, university research is often inward-looking and focused on its own interests, and only instigates one-way communication with the outside community when researchers consider their results might be of interest to it. Moreover, the fact that we found no significant differences among the participant countries (Ferrández-Berruero et al. [2023](#)) seems to show that the situation is, unfortunately, very similar with no or very few institutional policies to promote engagement, interaction, or responsibility. However, these results contrast with findings from international context, which highlight the differences in the RRI perspective across countries and continents. In Europe, the USA, and Australia, we find some examples of strategies aimed at enhancing communication and engagement between academic researchers and stakeholders. Albertson et al. ([2021](#)) in their work conducted in the UK by members of The Fourth Quadrant Research Network (4QRN) emphasise the relational dimension arising through extending 'responsibility' to an a-growth approach to innovation, one which emphasises the relational dimensions of responsible innovation through the concept of 'well up' economics.

In Austria, Marschalek et al. ([2017](#)) highlight stakeholder training as a means to bridge the gap between 'RRI in theory' and 'RRI in practice', exemplified by the RRI Tools project. In contrast, the contribution of Egeland, Forsberg, and Maximova-Mentzoni ([2019](#)) in Norway discusses learning as an approach to RRI and question the assumptions surrounding RRI as a program that can or should be applied as a tool, method or recipe within organisations conducting or funding research and innovation. In the Nordic context, Ryan, Mejlgaard, and Degn ([2021](#)) adopt a more focused perspective on organisational factors within institutions, while Van Oudheusden and Shelley-Egan ([2021](#)) explore new approaches to RRI by intertwining concepts such as social innovation, (techno)feminist economics, ethics of care or postcolonialism, among others.

On the other hand, in the USA, Jennifer and Roberts ([2018](#)) advocate for a stronger emphasis on documenting, identifying, and developing collaborative, realistic and practical approaches for RRI that can effectively address the barriers without compromising core principles such as inclusion, anticipation, reflexivity and responsiveness.

Finally, in the Australian context, Ashworth et al. ([2019](#)) delve into the conceptualisations of RRI associated with different notions of 'responsibility' and point out the Australian government's growing recognition of the significance of RRI impact.

Following the results obtained, in some cases, we found that research addresses SH's specific needs and that some kind of communication is established through contracts, for

example, or because the researchers themselves are particularly sensitive to the SH's problem. However, in neither of these cases does this dialogue seem to take place on equal terms and only very occasionally can it be considered to be deliberative, in line with the 'agnostic deliberation' described by Brand, Blok, and Verweij (2019); rather, it reproduces the structures of power and influence held by the strong over the weak (Blok 2014). As for the type of participation encouraged by this communication, we see how the Isolated profile is located on the non-communication and non-participation rung, which would correspond to the lowest rung in Arnstein's ladder (1969), still based on the deficit model. The Disseminator profile would correspond to a one-way communication model on the Informing rung, which has no feedback channel. Oriented towards an instrumental dialogue, the Transfer profile would correspond to the Consultation and Placation rungs of Arnstein's ladder, since research control continues in the hands of RG, although SH are consulted on small issues, after which the legitimacy or feasibility of their advice is rated. Participation is, therefore, utilitarian and instrumental, bringing SH and citizens together on an asymmetrical level of power, with no decision-making during the research process. The Inclusive profile, the lowest among the researchers interviewed, is the one associated with a Partnership rung between RG and SH, since a redistribution of power and roles is clearly evident.

When these results are linked to the type of research undertaken in the university, we found that the basic research type is predominantly associated with the Isolated 'no communication' profile, reflecting a lack of any type of interaction with SH. We consider the deliberative dialogue model appropriate for steering the results of this study, insofar as it acknowledges the necessity of altering power dynamics and striving for genuine conditions that promote more inclusive, equitable and empowering, citizen participation, often through partnerships or co-research (Arnstein 1969). To advance further in this direction, we propose a summary table of potential strategies (Ruiz-Bernardo et al. 2023; Sales et al. 2022).

While the need to promote and strengthen basic research is unquestionable, this finding reveals the absence of any effort to identify the potential recipients of its results. If one of the inherent values of basic research is to provide the foundations for the development of applied research, 'applied' researchers should automatically be understood as the 'basic' researchers' SH. This could link to Pasteur's quadrant, a third type of research introduced by Stokes (1997), where basic and applied research combine their motivations to contribute fully to innovation through what some authors have termed 'academic engagement' (Perkmann et al. 2013). However, our interviewees did not seem to be aware of this fact. Moreover, in the interviews with basic research groups identified in the Isolated profile, almost three quarters showed a total lack of knowledge or had only a vague idea of who the potential recipients of their findings might be. This is, in our view, perhaps the most problematic issue. If there is no dialogue even between researchers conducting basic and applied research through large interdisciplinary teams (Taebi et al. 2014), scientific advances through use-inspired basic research (Stokes 1997) are unlikely to achieve their full potential, which could explain the apparent pressure to make basic research more relevant and applied (Calvert 2006; Carrier and Gartzlaff 2020). Ryan, Mejlgaard, and Degn (2021) also found a profile of Higher Education institutions they termed 'Passive' which closely aligns with what we refer to as Isolated. These 'Passive' institutions exhibit low adoption

of Responsible Research and Innovation (RRI). The authors identified some factors related to organisations that are more ‘active’ when dealing with RRI. These include a high level of research intensity and impact, a multidisciplinary orientation, active participation in Horizon 2020 and larger size. Similarly, Ruiz-Bernardo et al. (2023) concur with the significance of interdisciplinary research and emphasise additional factors related to research activity rather than the type of research. They point out the importance of knowledge production and dissemination mechanisms such as facilitating collaborative article writing and using alternative forums and channels for joint dissemination among researchers and stakeholders.

Turning to applied research, although the situation is different and there is a greater awareness of which specific SH the findings are addressed to, there is a notable lack of dialogue with those recipients and, when it does exist, it is practically always one-way communication. We find this striking because, importantly, we are not talking about the one-way dialogue some authors refer to as the dialogue typical of hierarchical or instrumental knowledge transfer (Crane and Livesey 2023), but rather a monologue, in which the researcher is the expert who knows what society needs better even than society itself. The direction of interaction is from science to society, where SH are considered recipients of information about research, and citizen participation proceeds top-down, suffering either from lack of time or lack of impact on research (Carrier and Gartzlaff 2020). To counteract this imbalance and promote dialogue, certain authors, like Marschalek et al. (2017), propose RRI training through exemplary exercises with distinct objectives increasing awareness for RRI, facilitating mutual understanding among different stakeholder groups’ perception regarding RRI, encouraging on RRI and integrating RRI in daily practices.

In our analysis of the barriers identified by some interviewees in their justifications for this lack of communication, only the Inclusive profile appears to turn difficulties into opportunities through deliberative dialogue and, on the whole, does not refer to any barriers. These researchers are aware of approaching research topics from alternative perspectives, adjusting their strategies and research context in the light of such considerations. As Stilgoe, Owen, and Macnaghten (2013) and Macnaghten (2016) point out, public participation (or inclusion) is based on researchers’ reflexivity and responsiveness.

Of all the barriers to dialogue between the interested parties mentioned by the other RG, the most notable were evaluation based on scientific impact, expert knowledge, and resistance from SH to actively participate in the research. These are some of the issues that also emerge as challenges in Wäscher, Biller-Andorno, and Deplazes-Zemp’s (2020) interview study on researchers’ scientific responsibility. On the one hand, the relational approach to responsibility places researchers and SH on a level of co-responsibility when challenges in the social use of science must be met. On the other, it alerts us to the limitations of generalising perceptions in qualitative interview-based studies.

It is clear that the pressure to publish as the only way up the university career ladder distracts researchers’ attention from any purpose other than their individual professional prospects, a phenomenon commonly referred to as ‘publish or perish’ (Becker and Lukka 2022; Delgado-López-Cózar, Ràfols, and Abadal 2021). Authorities on university research are now seriously reconsidering the way research is assessed, following initiatives such as the Declaration on Research Assessment² or the Agreement on Reforming

Research Assessment³, which signals an important step in promoting fairer, more effective, and more transparent evaluation practices, thereby acknowledging the diversity of contributions to science and society. And in the same way that expected social impact has already been incorporated into Spanish research project grant calls, a specific definition of who will benefit from the research – the SH – should also be included, as is already the case in European calls. Cohen (2022) highlights the need to review specific funding policies and accompanying evaluation criteria to incentivise public engagement in research and innovation, focusing on collaboration and communication infrastructures and technologies.

As for expert knowledge, the job of researchers is obviously to do research, for which they will necessarily be better qualified than SH (Reynolds, Kennedy, and Symons 2022), and all the interested parties involved in the research are highly unlikely to take part in the same conditions (Tabarés et al. 2022; Taebi et al. 2014; Winickoff, Jamal, and Anderson 2016). Our results confirm previous studies by Bauer (2016), which show the persistence of the deficit model among researchers and other R&I practitioners. However, although engaging with SH might be seen as a threat by some researchers (Carrier and Gartzlaff 2020), it should not prevent them from opening the ‘black box’ of the research process and listening to what other voices may have to contribute (Steen and Nauta 2020). If they are to be the end recipients of the outcomes, they should have the right to collaborate in decision-making (Labbé et al. 2020). Hence, using Habermas’s contributions on deliberative dialogue as a framework, we concur with Braun and Konninger (2018) that power structures must be challenged and institutions should be required to take a more dialogic and participatory approach to public engagement in research and innovation.

The last barrier mentioned is SH’s resistance to actively engage with and participate in research. This barrier is closely related to the absence of a participatory culture (Sales et al. 2022), as previously demonstrated in studies such as those by Steen and Nauta (2020) or Schikowitz (2020), and affects RG and SH in equal measure. It highlights the pressing need for universities to open up to the wider community, in order for society to regard the research and innovation process as transparent (Bauer, Bogner, and Fuchs 2021; Van Mierlo, Beers, and Hoes 2020; Winickoff, Jamal, and Anderson 2016) and to ensure that researchers are no longer perceived as opportunists who only take society into account when they need something from it. If those outside academia understood the vulnerability and uncertainty involved in the research process, they might relate more to researchers and be more willing to participate (Di Giulio et al. 2016). Perhaps SH are reluctant to participate because what they will receive in exchange is not clear. The different ways of doing science should be made more explicit via more responsible and inclusive research. In this vein, proposals have emerged in recent years, such as Ten Holter’s (2022) participatory design, and interesting initiatives like Social Labs (Timmermans et al. 2020) or citizen science, which are transforming the way research is done (Senabre, Ferran-Ferrer, and Perelló 2018; Winickoff, Jamal, and Anderson 2016). These initiatives enable an alternative evaluation of research quality based on social impact and can measure the inclusion of different perspectives or participant representation (Reynolds, Kennedy, and Symons 2022; Wickson and Carew 2014), in which participants themselves can become evaluators of the research (Ten Holter 2022).

In conclusion, given the small number of RG that establish deliberative dialogue as a form of communication between interested parties, no communication or a monologue seem to be the predominant model in university research. The arguments put forward by the researchers lead us to conclude that their positioning and way of understanding research prevail over social responsibility and RRI, and that there are many barriers limiting communication and participation in RRI. Indeed, studies from beyond Europe also confirm this assumption (see for example, Dabars and Dwyer 2022, on the situation in North America). The idea of more inclusive RRI raises institutional tensions in the general framework of universal social responsibility (de Saille 2015). It would, then, be useful to take a critical approach through public understanding of science research (Horst and Michael 2011) of the university's mission and institutional support for more reflexive and responsive research policies and practices. As members of an institution, in this case the university, researchers should direct their activities towards its goals. However, to that end, the institution should revise its organisational culture and enact deliberative strategies and inclusive participation practices in order to transform not only RRI but also the entire relationship between science and society (Bauer, Allum, and Miller 2007; Braun and Konninger 2018). Efforts could also be made to promote the use of research strategies based on cooperation, shared reflexivity, and knowledge co-construction (Bauer, Bogner, and Fuchs 2021; Fraaije and Flipse 2020; Jansma, Dijkstra, and de Jong 2022; Moliner García, Sánchez, and Ribés 2020; Robinson, Simone, and Mazzonetto 2021). This brings into play other epistemological and communicative logics that recognise different, but equally valid, forms of knowledge to explain the world and its realities. It requires us to reinvent ourselves as co-researchers (Rivas-Flores 2021), working together in a community and within a collective and dialogical framework (Fernández-Rodríguez and Martínez-Rodríguez 2021). This also implies, as rightly point out Van Oudheusden and Shelley-Egan (2021), an ongoing commitment to learning for the future of RRI. It involves opening up new more global and participatory approaches (e.g. post-colonialism, indigenous knowledge systems and slow science), and envisioning new frameworks for the responsible governance of science and innovation.

Finally, the study has some limitations that should be taken into account. Although the number of interviews analysed is high for this kind of study, it is too small to be representative of all RG. Thus, although there is a statistical basis that showed significant differences (Ferrández-Berrueco and Sales 2023), the ordinal level scale provides rough measures, which do not allow for nuance or detail. Moreover, even though response saturation was reached, the number of respondents was not representative. Therefore, we cannot generalise the comments or arguments to all RG. The main aim of qualitative analysis is not to generalise but to delve more deeply into the minds of interviewees. Occasionally, this entails the risk of readers believing that the comments are the same for the entire population, but that is not the case (Carrier and Gartzlaff 2020; Wäscher, Biller-Andorno, and Deplazes-Zemp 2020).

On another note, the complexity of the content analysis forced us to limit the results to those variables that appeared as statistically significant. Consequently, other variables were not analysed in depth, as was the case with area. Although it showed no significant differences (i.e. indicator scores were similar), it is possible that the arguments of groups from the various areas were different, despite the final result (indicator scores) being the

same. We believe it may be interesting to continue exploring and investigating these issues in future research. Furthermore, the following lines will lead us in exploring to the next generations of researchers. If our senior researchers are exhibiting such behaviours, what can we expect from the junior researchers? Will reproduce their mentors' patterns? If so, it is crucial to bear in mind the role of stakeholders in research when training new researchers; otherwise, the prevailing pattern of research isolation may persist over time.

Finally, it is important to note that these are the results collected in this study, which may not necessarily reflect the perspectives held by countries that may, in certain ways, be more 'advanced' in their RRI initiatives.

Notes

1. Interviewers were trained by the coordination group using the first interviews. Before the interviews took place, a catalogue with detailed instructions was designed and agreed among all the partners (the catalogue is available at irr.dcae.pub.ro).
2. <https://sfdora.org/>
3. <https://coara.eu/agreement/the-agreement-full-text/>

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