

Meaning of science communication construct for researchers and public relations at the Indonesian Institute of sciences

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ABSTRACT

Research institutions in Indonesia have an essential role in improving knowledge, skills, and the community's economy through research results. However, until now, domestic research results have not been well disseminated. One factor that influences it is the not yet optimal collaboration between researchers and public relations as science communicators in communicating research results to the public. They work for a research institution called the Indonesian institute of sciences. This study aims to find out the meaning of science communication for researchers and public relations and how they coordinate these meanings. This study uses a qualitative method with a case study approach. The case study was the dissemination of Beyonic Startmik Biological Organic Fertilizer in Pekalongan, Central Java. The primary data of this study were the results of observations on the conversation between researchers and public relations and semi-structured interviews. The results show that the meaning of science communication for researchers is the activity of conveying scientific information to the public by involving the assistance of public relations and supported by institutional policies. In contrast, the meaning of science communication for Public Relations is the dissemination of scientific information to the public based on information from researchers as a source of information. In coordinating meaning, researchers and public relations discuss the meaning of science communication as a series of communication processes that require the support of researcher competence, public relations communication strategies, and cooperation in building strong relationships with stakeholders.

Keywords: Science communication; researchers; public relations; coordinated meaning management; dissemination

Konstruksi makna komunikasi sains bagi peneliti dan humas lembaga ilmu pengetahuan Indonesia

ABSTRAK

Lembaga riset memiliki peran penting dalam upaya meningkatkan pengetahuan, keterampilan, serta perekonomian masyarakat melalui pemanfaatan hasil-hasil riset. Namun hingga kini, hasil-hasil riset di Indonesia belum terdiseminasikan dengan baik. Salah satu faktor yang mempengaruhi nya adalah belum optimalnya koordinasi antara peneliti dan humas sebagai komunikator sains di lembaga riset tersebut dalam mengkomunikasikan hasil-hasil riset kepada publik. Tujuan penelitian ini adalah untuk mengetahui makna komunikasi sains bagi Peneliti dan Humas, serta proses pengoordinasian makna. Penelitian ini menggunakan metode kualitatif dengan pendekatan studi kasus diseminasi Pupuk Organik Hayati Beyonic Startmik-LIPI tahun 2021 di Purwokerto, Jawa Tengah. Penelitian ini menggunakan sumber data primer percakapan antara peneliti dan humas pada saat mendiskusikan persiapan diseminasi di media whatsapp. Teknik wawancara dilakukan secara daring melalui zoom meeting kepada peneliti POH Beyonic Startmik, Humas Pusat, serta Koordinator Humas Kawasan Cibinong. Hasil penelitian menunjukkan makna komunikasi sains bagi peneliti adalah kegiatan menyampaikan informasi ilmiah kepada publik dengan melibatkan bantuan humas dan didukung oleh kebijakan lembaga. Makna komunikasi sains bagi humas adalah mendiseminasikan informasi ilmiah kepada publik berdasarkan keterangan peneliti sebagai sumber informasi. Peneliti dan Humas mengkoordinasikan makna komunikasi sains sebagai serangkaian proses komunikasi yang membutuhkan dukungan kompetensi peneliti, strategi komunikasi humas, dan kerja sama dalam membangun relasi yang kuat dengan stakeholder.

Kata-kata Kunci: Komunikasi sains; peneliti; humas; manajemen makna terkoordinasi; diseminasi

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INTRODUCTION

Superior and competitive human resources (HR) can create highly competitive innovations as the main capital in national development. This is following the 2020-2024 National Medium-Term Development Plan (RPJMN), which is to create an independent, advanced, just, and prosperous Indonesian society through accelerated development in all fields with a solid economic structure based on competitive advantage.

Technological innovation products produced by researchers at Ministries/Institutions (KL), Non-Government Organizations (NGOs) or the private sector, as well as universities are expected to be able to provide solutions to the nation's problems ranging from health problems, food crises, natural disasters, energy crises, maritime affairs, to climate change to increase productivity in various development sectors. According to Gayo, the results of research and development produced by researchers can be used as material for policy formulation and strategic steps of ministries or institutions in solving development problems through research-based policies (Gayo, 2017).

Communicating research results to the public in an effort to realizing one of the national goals, namely the intellectual life of

the nation. In the era of global competition like now, scientific literacy is the main capital that the public must have to catch up with research in our country.

Socializing science and technology is also able to increase public awareness and understanding of the importance of science to encourage the nation's competitiveness at the global level. For the research results to be widely accessible, scientific communication is needed. The factors behind the birth of science communication are the desire for science to be widely understood, more interesting, beneficial to the nation, and more accountable for the public interest (Gascoigne & Metcalfe, 2017).

As science communicators, researchers have a major role in the successful process of disseminating research results to the public. Researchers should be able to translate the complexity of research results using clear and simple language so that the public understands and is interested in the research findings (Gunawan, 2019). Apart from researchers, public relations (PR) also plays a role in supporting scientific communication in R&D institutions. Public relations in scientific institutions act as communicators of science and technology (science and technology) and are required to have the expertise to dialogue with the public about the roles and functions of institutions, as well as the benefits of research

results to the public (Sugiyanto, 2016).

In the context of science communication, public relations and researchers are side by side and even share functions to introduce research results to the public (Autzen, 2014). Public Relations also acts as a mediator or liaison between researchers and stakeholders (Gunawan, 2019). The PR strategy in building the image of research institutions is carried out by maintaining good relations (media relations) with the media crew. The form of collaboration between researchers, public relations, and the media is carried out when reporting discoveries to the public through press conferences and press releases which are then published in the mass media. In addition to media relations, public relations is also carried out by public relations through the management of the institution's social media. Social media of government institutions managed by public relations is effective in disseminating up-to-date and timely information so that people feel more connected (Puspitasari & Irwansyah, 2022). The feeling of being connected indicates that people are increasingly trusting the government institution.

The involvement of public relations with researchers in communicating research results is a function of public relations in public information services as an effort to build public trust in institutions. The dissemination of

research results carried out by public relations is in the context of serving the public interest, which will ultimately shape the image of the institution (Mohi, 2015). The persuasive communication carried out by government public relations in disseminating programs and policies in the mass media can instill an image of government performance in the public eye (Sarwoprasodjo, 2009).

However, the coordination between researchers and public relations is still not optimal. One of the causes of non-optimality is the problem of meaning among researchers and public relations. Public relations is defined as someone who has a communication strategy so that he can persuade prospective customers and the public (Koivum & Wilkinson, 2020). For researchers, public relations is considered only oriented to building the image of the institution in the eyes of the public. On one hand, concerning communicating research results, researchers are more concerned with finding opportunities for dissemination activities than thinking about strategies for communicating with the public (Wilkinson & Weitkamp, 2013). The two statements above illustrate the gap between researchers and public relations in interpreting each other.

As a result of superior research that has been widely adopted by the public, LIPI (Indonesian Institute of Science) continues to

carry out the dissemination of Beyonic-Startmik POH. Dissemination of POH Beyonic-Startmik to the public is one of the most successful dissemination programs within the Deputy for Life Sciences, LIPI. Apart from researchers, public relations as supporting human resources also play a role in supporting the success of the dissemination program. The meaning of science communication held by researchers and public relations at the time of disseminating the Beyonic-Startmik POH creates an intense collaboration and coordination so that activities run smoothly. The understanding possessed by researchers and public relations related to their respective roles and backgrounds can foster a coherent relationship so that the community feels comfortable to participate in dissemination activities.

Subsequent research has discussed science communicators but only analyzed the different roles in discussions on social media, which stated that researchers and public relations of scientific institutions have slight differences in the practice of science communication (Koivum & Wilkinson, 2020). In discussions on social media, researchers are a little reactive and do not have a strategic view, while public relations is more respectful of what moral responsibility is of public concern and plays a role in growing public trust in science and technology.

In addition, several studies on scientific

communication previously only discussed the benefits of innovation, characteristics of the user community, dissemination media, dissemination approaches and methods, and communication strategies. Research on the benefits of innovation was conducted by (Hamzah et al., 2019) (and Meisya et al., 2020). Research on media dissemination of research results was conducted by (Zhang et al., 2016), (Adriyani, 2019), (Irawan et al., 2015), (Gartina, 2015), and (Meisya et al., 2020). Research on user characteristics was carried out by (Meisya et al., 2020) and (Diana et al., 2020). Research examining approaches and methods for disseminating research results was conducted by (Irfan et al., 2019) and (Sofyan, 2019), while research on communication strategies was conducted by (Diana et al., 2020), (Sofyan, 2019) and (Nurhayati et al., 2018). Based on the background described above, it is important to analyze the meaning of science communication for researchers and public relations and to coordinate the meaning of science communication. Therefore, the objectives of this research are; (1) to find out the meaning of science communication for POH LIPI researchers; (2) to know the meaning of science communication for LIPI Public Relations; (3) to find out how to coordinate the meaning the between POH researchers and LIPI public relations in communicating research

results to the public.

This study uses the theory of Coordinated Management of Meaning. Coordinated Management of Meaning (CMM) theory generally refers to how individuals define the rules for creating and interpreting the meaning and how these rules are interwoven in a conversation in which meaning is always coordinated (West & Turner, 2009).

In the context of science communication, this theory is able to help communicators (researchers and public relations) coordinate messages so that dissemination activities take place effectively. Therefore, in the context of this research, CMM theory is able to reveal how researchers and public relations activities speak, executive relationships, and create new cultural patterns in disseminating Beyonic Startmik POH to the public.

RESEARCH METHOD

This research uses the constructivism paradigm. This paradigm believes that individuals always try to understand the world in which they live and work through subjective meanings of their experiences (Creswell, 2010). The method used is qualitative with a case study approach, namely the dissemination of Beyonic Startmik-LIPI Biological Organic Fertilizer (POH). This study analyzes the construction

of the meaning of science communication by researchers and public relations through conversations that occur when they are discussing the preparation of the Beyonic Startmik POH research results dissemination activity, coordinating the implementation of dissemination, and coordinating the preparation of public relations content.

The data collection process in this study was carried out in February-May 2021. This research was carried out through several stages; the first was the observation stage, namely analyzing conversations on WhatsApp media between Beyonic Startmik POH Researchers and LIPI Public Relations Center related to preparation for dissemination of Biological Organic Fertilizers (POH). Beyonic Startmik LIPI to farmers in Pangkah Village, Karangdada District, Pekalongan Regency. The next stage of observation is to analyze the conversation between Beyonic Startmik POH researcher and LIPI Cibinong Area Public Relations Coordinator on WhatsApp related to the making of Beyonic Startmik's POH news feature on the institution's website. The second stage is to conduct interviews with informants at the Central LIPI Office, Jalan Gatot Subroto No. 10, Central Jakarta, as well as interviews at the LIPI office in the Cibinong area. The research period lasted for two months, from March to May 2021.

The object of this research is the dialogue or conversation that occurs between researchers and public relations and how each science communicator conveys and interprets messages when they carry out Beyonic-Startmik POH dissemination activities. The research subjects or informants in this study were POH Beyonic-Startmik Researcher, LIPI Public Relations Center, and LIPI Cibinong Regional Public Relations Coordinator.

The determination of informants was carried out purposively, namely POH Beyonic Startmik-LIPI Research staff, Central Public Relations, and Cibinong Regional Public Relations Coordinator. This study uses primary and secondary data. Primary data were obtained from conversations between researchers and public relations WhatsApp media. Primary data was also obtained through structured interviews with Beyonic Startmik-LIPI POH Researcher staff, Central Public Relations staff, and the Cibinong Regional Public Relations Coordinator. Meanwhile, secondary data was obtained from reports on the results of Beyonic Startmik's POH dissemination activities, as well as news on the website.

This study uses primary and secondary data. Primary data were obtained from observations of conversations via WhatsApp media between POH Researcher Beyonic Startmik and Public Relations and Public Information staff, as well

as conversations between POH Researcher Beyonic Startmik and the Coordinator of Cooperation and Public Relations LIPI Cibinong Region. Primary data was also obtained through structured interviews with the three informants. Researchers obtained secondary data from reports on the results of Beyonic Startmik's POH dissemination activities, as well as reports on the LIPI website.

Data analysis in this study used three stages, namely data reduction, data presentation, and drawing conclusions and verification (Miles MB, 1992). The data reduction stage in this study was carried out by simplifying or condensing interview data and conversations between researchers and public relations when they discussed the implementation of Beyonic Startmik POH dissemination and when creating Beyonic Startmik POH news feature content on the website. The next process is to do the coding in the first stage, namely by analyzing the conversational data along with the interview into a description, process, emotion, and value code.

The second stage in data reduction is to perform the second stage of coding. At this stage, the results of the coding data processing in the first stage are analyzed and then categorized based on the hierarchy of meaning contained in the coordinated meaning management theory. After the data is presented, conclusions

are drawn and verified based on the problem formulation contained in this study.

The validity of the data in this study was carried out using source triangulation, namely by analyzing the conversations between the Beyonic Startmik-LIPI POH Researcher and the LIPI Main Secretary, as well as the conversation between the LIPI Beyonic Startmik POH Researcher and the LIPI Legal Cooperation and Public Relations Bureau.

RESULTS AND DISCUSSION

Based on the results of data processing, POH Researcher Beyonic Startmik and LIPI Public Relations Center interpret content level as a coordination process. Coordination in this context is intended to coordinate in terms of preparation and readiness before the dissemination activities are carried out. Researchers and public relations interpret readiness and preparation as something important and must be coordinated beforehand so that dissemination activities run smoothly. In this study, readiness includes coordinating on son-silence. The following is a conversation between public relations and researchers when discussing the issue of readiness:

YH: *"The change of location Mr. SA, originally from Pematang to Pekalongan,*

for the fixed date of March 20. Mdh2an Pak Anton can be present at the location. Thx."

SA: *"Hello, Mr. YH; I hope you are always in excellent condition! Regarding attendance at the training location. We are both at high risk related to AGE and COVID, so I think we have to pay attention to this. For implementation, it has been and is being taken care of with the PPII team."*

While preparation is interpreted by public relations and researchers as a request for a dissemination schedule, the following is a conversation between public relations and researchers that supports this statement:

YH: *"Sir SA, there is another request for dissemination from members of the DPR for the h. Thx."*

SA: *"Okay, Mr. YH.... need to be prepared better... oh yeah, it's not a bill, if I'm not mistaken when we fill in the speakers there is also tired money (?), like some time ago when filling the event debriefing the retirees, I filled out the online informant ...narcism it could be a substitute for internet quota and what is clear is because there is a budget ceiling, it should be? Tks".*

YH: *"Okay, Mr. SA."*

Preparation and readiness in the context of this research are included in the content level in the hierarchy of meaning. Preparation and readiness are raw data or messages that do not have meaning and will try to be converted by researchers and public relations into a meaning, namely requests for dissemination schedules and attendance at the location.

When discussing the theme of readiness and preparation, the public relations officer spoke by informing the researcher of the request for a dissemination schedule. Then the researcher responded by asking and confirming speech acts. In CMM theory, speech act refers to the configuration of the logic of meaning and action of the conversation, and this configuration is built together. Speech acts provide context for how someone interprets the current communication situation. In this case, a communication situation is built, or an interpersonal communication process occurs between researchers and public relations. CMM theory states that the purpose of someone communicating is not only how the message is conveyed and understood by others but, more importantly, how people understand the communication situation that occurs and acts on the situation. In the context of this research, when the public relations officer informed the researcher of the request for a dissemination schedule, the researcher

then responded by asking and confirming the administrative problems that had not been resolved in the previous dissemination activities. The communication situation that occurs in the conversation will be seen at the next level of the hierarchy of meaning, namely episodes.

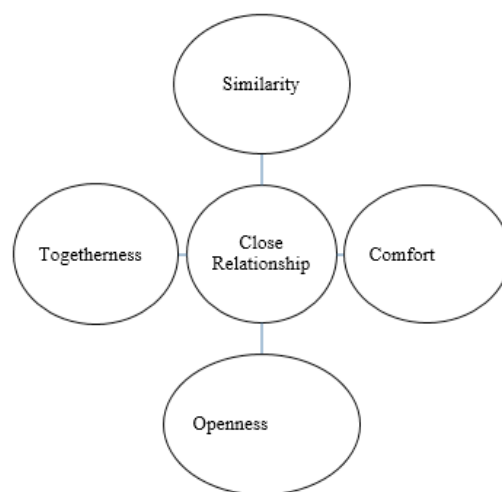
In this conversation, the context of the communication that occurred between the researcher and the public relations officer described was an accommodative episode. Central Public Relations acted by confirming the message to POH Researcher Beyonic Startmik. Then the researcher responds with speech acts asking to be considered. This response was conveyed by the researcher because it was related to his age, who was vulnerable to being exposed to the Covid-19 virus if he was present at the location. So the researchers suggest that the presentation is done online. Then the PR responds back to the speech act of assent or agrees with what the researcher wants. Based on this theory, in the episode requesting the presence of the resource person at the location, there is an, initial communication routine, namely when the PR asks the researcher for attendance, the intermediate communication routine is when the researcher asks the PR to consider his request to be present at the location and ask for online material exposure, as well as communication routines. The final stage is when the public relations officer agrees to the

researcher's request for an online presentation session. Based on this theory, a conversation is established in an accommodative communication situation between researchers and public relations.

Based on the research, the reality of a close relationship was built between the Central Public Relations and POH Researcher Beyonic Startmik. According to research conducted, it was stated that the pattern of close relationships was identified as a relationship that had similarities, comfort, openness, togetherness, and culture (Nurhaipah, 2019).

The element of similarity in this study is interpreted as the basic element that unites researchers and public relations, namely, working together under the LIPI institution. Although the two actors have different professions, in the context of this research case study, both have a vision, namely the desire to disseminate the research results that have been produced by LIPI to the public.

The elements of comfort and openness that are owned between researchers and public relations are established because of a relationship of trust. The relationship of trust between researchers and public relations is constructed because the two entities are aware of each other's capabilities and limitations. In the context of this research, POH researchers as a source of information have information



Source: Coding results of POH Researcher's conversation with Public Relations Center

Figure 1 Setting the relationship between POH Researchers and Public Relations Center

related to innovation and the method of making Beyonic Startmik POH, but researchers do not have direct access to dissemination requests.

With the relationship of trust that is built between researchers and public relations, a sense of comfort and openness is constructed. This was reflected in the conversation when the POH Researcher confirmed unresolved administrative problems during the previous dissemination activity. Based on the relationship that has existed for a long time, the POH Researcher, with a feeling of comfort and openness, asked directly to the Public Relations Center.

The next level is the script of life. POH researcher Beyonic Startmik's life script is influenced by family background. Family

background The POH researcher is a farmer family in a small hamlet in Kulonprogo Regency. The area where the POH Researcher lives is an area that has extensive agricultural land and a high level of productivity. Apart from being a farmer, the parents of the POH researcher also served as heads of the hamlet so that they structurally had positions in government in the local village. From childhood to junior high school, POH researchers lived with their families, so they had close relationships with the world of agriculture and had experience working in a farming environment. The following is the statement of the POH researcher at the time of the interview related to the statement of motivation as a researcher,

“So that’s why I became what... er... my inspiration for food crop research was that no one directed me, so the point is because my parents are farmers, so I want to do something for agriculture.” (Interview, March 3, 2021).

The experience of living in a family with a farmer background is a factor that influences the life script owned by POH researchers. This experience has constructed the reality of his life to become a person who loves the world of agriculture and wants to contribute to advancing the world of agriculture. The script of living with a family with a farming background is an episode of the POH Researcher’s past that affected how he communicated and interacted

with other people.

The life script of the Central Public Relations was influenced by his experience working under the Science and Technology Cooperation Bureau or which has now changed its nomenclature to become the Legal Cooperation and Public Relations Bureau. For more than thirty years of Central Public Relations working in this department, there have been a lot of experience in collaborating with other people both inside and outside the LIPI environment. The experience of Central Public Relations interacting with various levels and different characters has shaped his personality into someone who is a friendly handle.

While working at the Central Public Relations BKHH, he also served as the Head of the Scientific Development Section. While serving in that position, the Central Public Relations had experience interacting with researchers at LIPI, one of which was a POH researcher who had been a resource for the Youth Scientific Work Contest (LKIR), one of the scientific coaching programs at LIPI. Based on the experience and performance of the Central Public Relations, he was finally trusted by the Head of LIPI as a liaison between LIPI and the DPR related to the dissemination of research results.

The last level is the cultural pattern. The cultural pattern that the POH Researcher has to

become a scientist has existed and has grown since he took his undergraduate education. The motivation that he wants to realize is to contribute to the world of agriculture. In realizing this motivation, POH researchers have a cultural pattern like a scientist. The cultural pattern in question is behavior that is formed from life experiences, starting to get to know the world of agriculture from family background, taking education in agriculture, then using and trying to get an agricultural expert mentor until researches on POH Beyonic Startmik. He also managed to work as a researcher for more than thirty years.

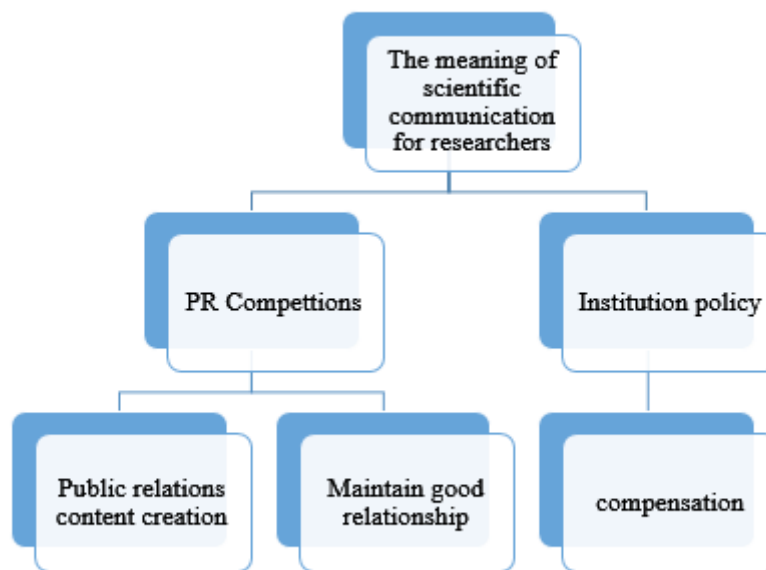
While the cultural pattern states that humans identify themselves with certain groups, each of us behaves in accordance with values that exist in our society. Public Relations Center identified himself as a public relations staff working at BKHH. BKHH is a bureau in LIPI which has the task of providing research collaboration services both at home and abroad. BKHH also oversees all public relations institutions at LIPI. On this basis, the environment in which the Central Public Relations works affects the cultural pattern of the Central Public Relations to become someone who has the behavior or pattern of serving culture.

Communicating research results is a necessity in order to interrogation as well as improve people's skills and competitiveness.

This is relevant to the research presented by (Weingart & Joubert, 2019), that the purpose of science communication is to increase public understanding, make science accessible, and enable public participation in science and technology processes. In communicating research results, researchers need public relations competence. This is to research conducted which states that in the context of science communication, public relations and researchers are side by side and even share functions to introduce research results to the public (Autzen, 2014). Researchers need public relations competence in terms of maintaining good relations with stakeholders and creating public relations content. The following is the statement of the researcher during a dialogue with public relations regarding the editing process of Beyonic Startmik's POH news material:

"If you haven't done this (editing the script), if BKHH can help, we will be very grateful... actually, many foreign friends are interested."

In addition to the competence of public relations, leadership policies in terms of budget are also a supporting factor for the smooth dissemination of research results. That effective institutional communication factors influence the success of dissemination and downstream of agricultural innovations (Hutahaean &



Source: Presentation of research data using Atlas.ti software version 8

Figure 2 Construction of the Meaning of Science Communication for Researchers

Humaedah, 2017).

The following is the statement of the researcher during a dialogue with public relations related to leadership policies.

“Yes, sir... sometimes we who are “underneath” are confused, there are still many requests for dissemination... but of course, we, don’t know the leadership’s policy... we already have specific POH for cereals, cassava, bananas, and peanuts twice. After all, the function is general, and now the POH project for onions and POH for chili, funding is also purely from the mandatory Research and Technology-BRIN LPDP... from LIPI itself, there is no budget.”

The details of the meaning of scientific communication for researchers are explained in the figure 2.

As a science communicator in a research institute, coordination between public relations

and researchers can encourage the function of public relations in the field of public information services. Public Relations places researchers as sources of scientific information to then be packaged into news information that is easily understood by the public. This is relevant to the results of research (Roberson, 2020) drawn from the history of social movements (activism, which states that scientific communication carried out by researchers with public relations is a complementary activity and ultimately has the same goal and function, namely bringing science closer to the public.

The meaning of science communication for public relations is public dissemination based on the information of researchers as a source of information. The purpose of the

source of information in this study is related to readiness and preparation, as well as substance. When researchers and public relations talk about readiness episodes, public relations get information from researchers related to willingness to be a resource person, who represents, and the presentation method used during dissemination. While in the preparatory episode, public relations received information about the technicalities of making news content from researchers.

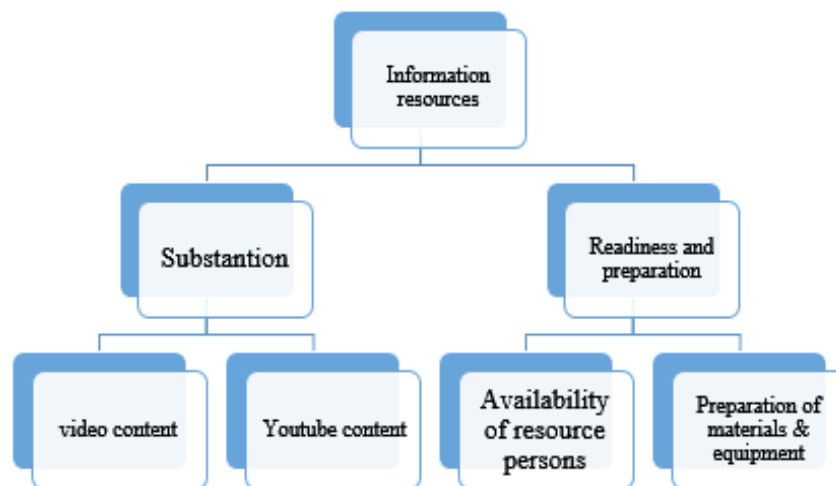
The next source of information is related to substance. The substance is interpreted as scientific information about the results of Beyonic Startmik's POH research which is implemented in the form of information media, namely videos and news content on YouTube. The scientific information on videos and YouTube is then processed and packaged by public relations for further dissemination through corporate website channels. It is intended that scientific information held by researchers can be accessed by the public through YouTube channels and websites. This statement supports the results of research (Gunawan, 2019) that researchers are required to have the skills to convey research results in the form of popular articles in the mass media so that they can be accessed by all levels of society. For more details, the meaning of public relations about science communication can be

seen in the figure 3.

Based on the analysis of conversations between researchers and public relations when coordinating preparations for the Beyonic Startmik POH dissemination in Pekalongan Regency, the coordination of the meaning of scientific communication between researchers and public relations is formulated as coordinating the meaning of science communication as a series of communication processes that require the support of researcher competence, public relations communication strategies, and cooperation in build strong relationships with stakeholders. The following is an explanation of how to coordinate the meaning of scientific communication between researchers and public relations.

The first factor coordinated by the researcher and public relations in the context of this research is the competence or expertise possessed by the researcher. Competence is an indicator of the quality and professionalism of researchers in research institutions in producing superior, competitive innovations that can be benefited the user community.

The success of Beyonic Startmik's POH dissemination has been marked by the many requests from farmers, companies, and local governments to adopt this innovation. This is inseparable from the role of POH Researcher Beyonic Startmik in overseeing the



Source: Data presentation using Atlas.ti software version 8.

Figure 3 The Meaning of Science Communication for Public Relations

implementation of this dissemination activity. The competence possessed by the researcher when conveying information related to POH Beyonic Startmik became the main factor for this success. Referring to the explanation contained in PP No. 14 of 2018 above, in the context of this research, Beyonic Startmik POH researcher, is very familiar with the scientific basis according to his expertise. This is in the following statement:

“So far, in Indonesia, research on fertilizer application has not yet reached the enzymatic level, so I left from there, I started something new here, and Indonesia also has millions of hectares of agriculture, and now the land is getting worse, but the tools for research are still very poor. conventional, so at that time, I submitted a proposal to the Head of LIPI to establish the first biological organic fertilizer laboratory in Indonesia.”

Based on the statement of the Beyonic

Startmik POH researcher, it can be seen that his expertise on microbial enzymatic at the enzymatic still rarely owned by organic fertilizer researchers in Indonesia, so many researchers from other agencies did internships and collaborated with POH researchers, as well as pioneered the construction of laboratories. The first organic fertilizer in Indonesia and has the most up-to-date facilities.

The next requirement for supporting research competence factors is that researchers must be able to bring in sources of funds from external institutions. The expertise and innovations possessed by Beyonic Startmik POH Researchers have an impact on collaboration offers from industries that are interested in using Beyonic Startmik POH to increase their agricultural productivity. The following is the

statement of POH Researcher Beyonic Startmik regarding the offer of cooperation with the industry:

“After I came back from Germany, I wrote a paper about my innovation, and it was finally read by the biggest pineapple plantation company in Sumatra.”

The next competency supporting requirement factor is having a patent or license for the innovation that has been carried out. Related to the many stakeholders who want to adopt the Beyonic Startmik POH, including, in this case the industrial world, of course, LIPI has received a lot of royalties from this collaboration. Therefore, in 2020, Beyonic Startmik, POH researcher, received an award from the Head of LIPI as an outstanding HR related to the largest royalty-producing category in 2019 for the patent for Biological Organic Fertilizer and its Manufacturing Process.

Several factors supporting the competencies possessed by the Beyonic Startmik POH Researcher above became one of the causes of the success of the Beyonic Startmik POH dissemination program. The competence and expertise of Beyonic Startmik POH researcher were able to convince stakeholders who in this study were intended as members of Commission VII DPR RI to be chosen as the right innovation to be disseminated to the community, especially farmers.

The second factor coordinated by researchers and public relations is the public relations communication strategy. In this study, public relations communication strategy is intended as the skills and expertise possessed by public relations in disseminating information about Beyonic Startmik POH to the public. There are two communication strategies carried out by public relations in disseminating information about POH Beyonic Startmik, namely through article writing on the website and editing of video content as exhibition material. This is in accordance with which states that apart from various training activities, information dissemination can be held in the form of press conferences, press interviews, article writing, publications, or through publications. Meanwhile, states that computer-based activities such as websites and videos are a form of activity that can be carried out to convey research results to the public (Burns et al., 2003).

The communication strategy using the website and the video media carried out by the Cibinong Region Public Relations Coordinator to communicate POH Beyonic Startmik to the public is one of the functions of public relations in the field of information services to the organization's public. According to Ibrahim (1988), information dissemination is the process of disseminating information

that is planned, directed, and managed so that information exchange occurs and ultimately creates a common opinion about an innovation.

Based on this statement, the process of disseminating information about Beyonic Startmik POH through the media website and video editing has gone through a directed plan and was previously managed by Beyonic Startmik POH Researchers with Central Public Relations. The process of coordination between researchers as parties who have sources of scientific information and public relations as parties who have expertise in packaging scientific information into language that is easily understood by the public is a form of collaboration in scientific communication. This refers to the research submitted by Autzen (2014); it is stated that in the context of science communication, public relations and researchers are side by side and even share functions to introduce research results to the public.

In the implementation of the Beyonic Startmik POH dissemination, good cooperation between researchers and public relations is needed. The collaboration referred to in this study is a form of relationship between researchers and public relations. According to (Pearce, 1989) relationship is when two people realize their potential and limitations as partners in a relationship. In this case, the researcher and the publicist are aware of each other's potential

and limits as they engage in conversation. Researchers are very aware of its potential in that it is the source of information related to POH Beyonic static. On the static hand, researchers are also aware of the limitations they have in terms of packaging public relations content.

Likewise, with public relations, they are aware of their limitations in getting information about POH Beyonic Sartmik as news material on the website. The second limitation is that public relations require researchers to be present as resource persons during dissemination activities.

In the theory of Coordinated Meaning Management, the relationship is also said to be a contract in which there are demands for behavior. Contracts in this study are defined as the creation of strong relationships with stakeholders or stakeholders. Stakeholders in this Beyonic Startmik POH dissemination case study included members of the DPR RI Commission VII, regional heads where the dissemination took place (regents, mayors, sub-district heads), and farmer groups associations (gapoktan). Researchers and public relations must communicate and coordinate in order to motion activities successful so that stakeholder trust is maintained.

CONCLUSION



Source: Presentation of data processing using an atlas.ti software version 8

Figure 4 Coordination of the Meaning of Science Communication between Researchers and Public Relations

Bionic Startmik POH dissemination is a form of scientific communication carried out by LIPI to the public. This activity involves the role of researchers as resource persons as well as public relations communication strategies in conveying scientific information to the public. Prior to the implementation of the dissemination, the researchers and public relations first conducted discussions related to the preparation of activities. The purpose of the discussion is to coordinate the meaning or theme of the conversation held by the researcher and public relations so that the dissemination activities run smoothly.

At the time of discussion, researchers and public relations have different experiences and backgrounds that require coordination in

creating and interpreting meaning. The meaning of science communication for researchers in this study is influenced by factors of public relations competence and institutional policies. Researchers need the role of public relations as a party capable of bridging researchers with policymakers when disseminating the Bionic Startmik POH. Researchers also need the role of public relations related to the creation of public relations content about POH Bionic Startmik.

Leadership policy factors related to funding for the dissemination of research results also affect the meaning of scientific communication owned by researchers. Operational costs are an equally important component in the implementation of dissemination because, apart from researchers, dissemination activities are also supported by other teams so that activities can run smoothly.

The meaning of science communication for public relations in this study is influenced by the role of researchers as a source of information related to the substance of research results, as well as preparation and readiness. Public Relations defines researchers as sources of information related to the creation of public relations content so that the information submitted to the public is valid and can be accounted for. Public Relations also defines researchers as sources of information in the preparation and readiness stages. The preparation stage includes

information on the dissemination schedule and the willingness of researchers to attend the collation. The presence of researchers as expert resource persons at the location affects the public's perception of POH Beyonic Startmik. Therefore public relations requires certainty from researchers. The readiness stage includes presentation materials, as well as the equipment used during the dissemination. Before the activity takes place, public relations needs to ensure in advance the materials that will be used by researchers during presentations and demonstrations to the public. Public relations also need to conform to the researcher regarding the technical presentation, whether it is done in person or online. It is important to do so that the message conveyed by the researcher to the public can be conveyed clearly and validly.

When discussing the preparation for dissemination, a process of coordination of meaning was carried out between the researcher and public relations. This coordination of meaning is achieved when researchers and public relations discuss the competence of researchers, public relations communication strategies, and cooperation in building relationships with stakeholders. This can be seen from the consistency and suitability of speech acts that occur when they discuss the theme of the conversation. The process of achieving coordination is also influenced

by the form of the relationship that occurs. The closer the relationship, the easier the meaning coordination process will be achieved. Understanding the limitations and potentials of each researcher and public relations influences the form of relationships that are created. The process of coordinating meaning is also influenced by the script of life owned by researchers and public relations. In this study, the life script of researchers and public relations influences the meaning of researchers and public relations on scientific communication, which they then implement into attitudes and actions in interaction. They interpret science communication as a dissemination activity that must be carried out by institutions to the community as a form of moral responsibility. The coordination of meaning is also influenced by one's cultural patterns. Social values obtained when researchers and public relations interact with groups or cultures in society affect how they interact. In this case, the pattern of service culture that is owned by researchers and public relations has an effect on the achievement of the meaning coordination process. The cultural pattern of serving them is implemented in the form of cooperation and collaboration in the Beyonic Startmik POH dissemination activity.

Understanding the meaning of scientific communication between actors involved in the dissemination of research results and

knowing the factors that influence the process of coordinating meaning is required by research institutions in order to form a solid dissemination team. In addition to the competencies possessed, it is necessary to pay attention to how the script of life, cultural patterns, and the nature of the relationships possessed by the actors involved in the dissemination activities are concerned.

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