

## The Quadruple Helix Communication Model in Yogyakarta's Creative City Development

### Model Komunikasi Quadro Helix dalam Mengembangkan Yogyakarta sebagai Kota Kreatif

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#### Abstract

*Developing a creative city is a challenge that requires the collaboration of all creative actors. It is challenging when the development of creative cities adopts the quadruple helix model. The study was essential to introduce the quadruple helix communication model. It employed a qualitative research method to understand how each creative actor communicates and collaborates in the development process of Yogyakarta as a creative city. The result found that the proposed quadruple helix communication model was the development of the transactional communication model. This model emphasized the provision of space for both one-way and two-way communication to emerge. The quadruple helix communication model helped the development planning of Yogyakarta as a creative city. The use of one-way or two-way communication related to the achieved goal: to inform, consult, collaborate, or empower. Further, this model identified the role of each creative actor in Yogyakarta in developing the creative city.*

**Keywords:** *Communication model; creative city; creative actors; quadruple helix*

#### Abstrak

*Pengembangan kota kreatif adalah tantangan yang membutuhkan kolaborasi semua aktor kreatif. Pengembangan kota kreatif bahkan menjadi kompleks ketika model quadro helix diadopsi. Riset ini penting untuk memperkenalkan model komunikasi quadro heliks. Riset ini menggunakan metode penelitian kualitatif untuk memahami bagaimana setiap aktor kreatif berkomunikasi dan berkolaborasi dalam proses pengembangan Yogyakarta sebagai kota kreatif. Hasil riset menunjukkan bahwa model komunikasi quadro heliks yang diusulkan adalah pengembangan model komunikasi transaksional. Model ini menekankan penyediaan ruang untuk komunikasi satu arah dan dua arah. Model komunikasi quadruple helix membantu perencanaan pembangunan Yogyakarta sebagai kota kreatif. Penggunaan komunikasi satu arah atau dua arah yang terkait dengan tujuan yang dicapai: untuk menginformasikan, berkonsultasi, berkolaborasi, atau memberdayakan. Selanjutnya, model ini mengidentifikasi peran masing-masing aktor kreatif di Yogyakarta dalam mengembangkan kota kreatif.*

**Kata Kunci:** *Model komunikasi; kota kreatif; aktor kreatif; quadro heliks*

## Introduction

City developments in Indonesia have undergone significant growth. The enactment of Act No. 32 of 2004 concerning Regional Autonomy has shown the other side of city management. One manifestation of the implementation of this act is how some cities began to explore their potentials, creative economy in particular, to increase Regional Original Income. This issue, added with an issue like an urban crisis in the economic sector, has brought the concept of the creative city to surface (Mustofa, 2019).

Yencken first introduced the idea of a creative city (1988). Landry & Bianchini further elaborated on the concept (1995). Since then, the creative city has become a new spirit in various parts of the world that are leading to new urban planning approaches. This idea appeared as a response to the growing complication encountered by many cities today. Studies emphasize the creative city has been very dynamic. Some focus on the topic of the creative city as the creative space for its citizens (Michels et al., 2014; Motcanu-Dumitrescu, 2017) and the actors of the creative city (Baum, 2018; Borén & Young, 2017; Konno & Itoh, 2017). Other researchers have looked at the image of the creative city (Das, 2016; Prilenska, 2012; Vanolo, 2015). However, the issue of the creative city and the issue of communication receives little attention (Foth & Hern, 2007; Leontovich & Леонтович, 2019). In Indonesia, some research focuses on the model of communication (Hidayat, 2017; Nurficahyanti, 2015). None have discussed the issue of communication among creative actors in the development process of the creative city, which is central actors and one of the essential aspects in developing the creative city. The understanding of the communication role among creative actors is essential in the creation of a conducive environment for a creative city as well as the synergy among creative actors. The argument is that the most critical resources of a city are its people (stakeholders) (Landry, 2012b). This study then focused on this research gap.

The creative city is a creative response to the problems or urban crisis faced by several cities in the face of economic globalization (Frey, 2003). The ideology that lies the concept is to improve the urban environment and advance the development of an inspiring atmosphere for the creative activities of the urban community. Three essential aspects need to take into account in the development of a creative city. They include creative economic growth, maintenance of creative classes (groups or individuals), and providing a conducive environment for the development of creativity. These three aspects are interconnected (Landry, 2012a). Creative classes, through creativity, contributed to creative economy development. Their creativity leads to products with intellectual property that has commercial value. Florida identified creative classes actors in the fields of architecture and design, science and engineering, art, education, music and showbiz, their economic function is creating new ideas, new technologies, new creative content, and the related fields of professionals (2002). Creative classes also need a conducive and inspiring environment so that they can carry out creative activities and develop creative products. It is this relationship that makes these three aspects important.

Indonesia is a country that has a variety of ethnic groups with unique products of art and culture. It has the potential to develop many creative cities. Yogyakarta is one of the creative cities that is considered appropriate to bear the title. As a city of culture and art, Yogyakarta is known to be creative in preserving the country's heritage through various means and breakthroughs. Art and culture are inseparable parts of society in Yogyakarta. They are commonly exhibited and performed on the streets of Yogyakarta.

In 2012, the Ministry of Tourism and Creative Economy of Indonesia encouraged five cities, including Solo, Bandung, Denpasar, Yogyakarta, and Pekalongan, to join the United Creative Cities Network (Sawabi, 2013). Of these five cities, UCCN accepted Pekalongan as a member in 2014 in the field of craft and folk art. The following year, UCCN declared Bandung as a creative city in the field of design. However, until now, the registration of Yogyakarta as a member of UCCN is still under consideration even though the Yogyakarta's creative economy has developed well considering Yogyakarta as a tourism destination city. Thus, the analysis of the communication and collaboration of the Quadruple Helix elements, namely UICG, in the process of creative city development becomes essential.

The research aims to study and further describes the implementation of the Quadruple Helix model in the development of Yogyakarta as a creative city. It explores the roles of various stakeholders, with the emphasis on communication and collaboration, in implementing the Quadruple Helix model. In particular, this paper looks at how actors of the creative city in Yogyakarta adopted the quadruple helix communication model in developing the creative city.

The Quadruple Helix is principally the expansion of the Triple Helix innovation theory (Etzkowitz & Leydesdorff, 2000). This theory emphasizes the formation of creative links between three helices – University, Government, and Industry – and how this collaboration initiates new knowledge, expertise or products, and services in the contentment of society's needs (Afonso et al., 2012). Quadruple Helix model is a conceptual framework of collaboration between university, industry, and government and community. Every actor has role and identity, which are university serves as a researcher (science), the government as policymaker (policy), the industry as producers (economic), and community act as fitting the gap between those three parties (connector) (Hudani & Dhewanto, 2015). University and industry, each with their knowledge and infrastructures, provide a conducive and supportive environment where all forms of creativity can arise. In turn, governments assure the growth of this creativity through the provision of financial support, the regulatory system, and infrastructure that showcase the output of this creative process. With the support and collaboration of university, industry, and government, the community must continue innovating goods and services. The synergy ensures that there is a continuous process of innovation and market to sell the product. The achievement of all of these must take into account health, social cohesion, or the environment. Universities have an additional role to play beyond the generation of wealth since the importance of this social aspect of innovation has become increasingly recognized as a vital part of the innovation process (Medinnoall, 2009).

There is a strong correlation between the creative city and the quadruple helix model. The city has one crucial resource - the people. Intelligence, desire, motivation, imagination, and human creativity replace location, natural resources, and access to the market as public resources. People's creativity who live in and manage the city will determine success in the future (Landry, 2012a). Creativity, in a broader context, encourages innovation and becomes a solution for everyday urban problems (Communian, 2010). According to Florida (2002), human creativity drives economic growth - and because creativity develops well in urban environments, it is a dynamic city that will be the center of the main power of future economic development.

## Method

This research employed a qualitative research method. Shank sees qualitative research as a systematic empirical investigation in seeking to understand the meaning of a phenomenon (Shank, 2001, p. 5). Qualitative research is a scientific method of surveillance to collect non-numerical data (Babbie, 2014). This type of research can provide a wide range of qualitative data with thorough descriptions and full of nuances. This sort of data is more valuable than just a statement of the amount or frequency in numerical terms.

In specific, this research adopted a case study which, according to Cavus and Juma'h (2001), is a research strategy that focuses on understanding the dynamics present within single settings. Case studies can involve either single or multiple cases, and numerous levels of analysis. One of the aims of using this sort of research method is to give a description (Pinfield, 1986). This research adopted an in-depth interview, literature study, focus group discussion, and participatory data gathering techniques. Data gathered focused on answering how the City of Yogyakarta had adopted the concept of the quadruple helix in the development process of the creative city within the perspective of communication. The study then proposed a model of quadruple helix communication.

The first step for the case study was identifying the research question and select the case. Focusing research questions and case helps to specify the necessary data and data gathering technique relevant to the research. The second step of this research was collecting data from Quadro helix stakeholders of creative city development. They include academics, business, government, and community. The third step was data analysis. The focus of this step was to identify the creative potentials of Yogyakarta to be a creative city and the roles of stakeholders in developing Yogyakarta as a creative city. The fourth step was formulating and interpreting the findings of data analysis. The researchers formulate and interpret during data collection. So that in the final stages of research, researchers can obtain the final results of the continuation of the interpretation process for the information obtained while conducting research. The final step was the presentation of the final result that includes the introduction of the quadruple helix communication model. Further, the analysis also showed the role of quadruple helix actors in the development process of Yogyakarta as a creative city.

## Results and Discussion

### Creative Potentials of the City of Yogyakarta

Although relatively new, the creative city as a concept, as well as guidance, has developed quite rapidly. The Indonesian government enthusiasm in encouraging the development of creative cities is inseparable from its efforts to make the creative economy as the backbone of the national economy. The Indonesian government has long been emphasizing the exploitation of natural resources as the primary source of foreign exchange and pays less attention to the growth and development of people's creativity. Thus, the enactment of Act No. 32 of 2004 concerning Regional Autonomy is a way of the Indonesian government to encourage regions in Indonesia to identify and maximize its economic potentials. One of them is through creative city development. Local economic potentials as excellence and regional identity give added value and competitiveness to creative cities. It can also become a center of growth for the region.

In Indonesia, Act No. 32 of 2004 concerning Regional Autonomy emphasizes the presence of three stakeholders in the development process. They include the

government, community/university, and the private sector. Despite no correlation found between the issuance of the act and the development of a creative city, this act is indeed coherent with the creative city concept.

Efforts to make Yogyakarta a creative city are closely related to President Joko Widodo's statement asking the Government of Yogyakarta to focus on developing the creative industry sector to increase economic growth, prosperity and job creation for the community. The president's message is indeed reasonable because Yogyakarta has tremendous potentials in this creative industry sector. Of the 16 creative industry sectors, Yogyakarta has several potentials such as fashion, design, crafts, culinary, computer and software services, music, performing arts (Aditya, 2017b).

A survey to identify the distribution of creative economy actors based on 16 creative industry sectors within the community reveals exhilarating data. Fashion is ranked first with 44%. It relates to the establishment of Yogyakarta as the International City of Batik since 2014. Not surprisingly, considering Yogyakarta as a tourist destination, culinary is on the second rank with 36%. Other creative industry sectors include product design (7%), craft (5%), design of visual communication (3%), photography (2%), publishing, interior design, and music (1%).

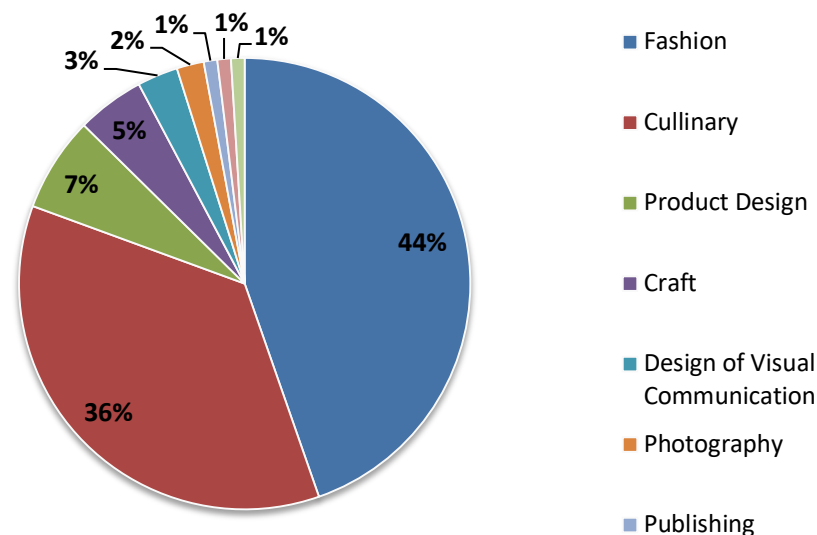


Figure 2. Creative industry sectors in Yogyakarta

Another essential issue is Yogyakarta's position as a student city. With 113 universities, the availability of young and creative human resources are abundant. In 2030, the estimation of the active population is to be above 60%. Further, young people with the age range of 16-30 years is about 27% of the total population. With this estimation, there is a potential of the creative class coming from the young population (Aditya, 2017a). This fact is another strength of the potential of Yogyakarta to be a creative city.

On the other hand, the obstacles faced are not insignificant because the creative actors involved in them are often less connected to each other, and the collaboration that exists between them is less intense and productive. This situation requires a mapping that involves all the actors who play a role in it, including mapping the potential and obstacles encountered so far. This process is the starting point for government agencies to make comprehensive and strategic policies. Mapping or ranking the regional creative

economy is essential to provide a creative economy database in Indonesia, identifying potential subsectors, and knowing the obstacles faced.

Some issues need to be addressed at the planning stage of creative city development. First, there needs to be a similar understanding of the concept of the creative industry. Many creative industries are only equated with Small and Medium Industries so that programs often overlap and are not optimal.

Second, the creation of a roadmap for the development of the creative city is necessary so that it becomes a direction for policies and programs. Yogyakarta still does not have any comprehensive roadmap compare to other creative cities like Bandung and Malang. The roadmap can provide data on the potentials of leading/priority creative industries, and suitable strategies used to achieve these goals. The policies must consider that each sector has its characteristics and uniqueness.

Third, it is necessary to encourage the emergence of entrepreneurial incubation centers more evenly. The incubation center is expected to become a vehicle for the growth of novice entrepreneurs so that the development of incubation center's activities must incorporate aspects of capital, technology, facilitation of marketing or promotion, legal protection, and incentives for the work of creative industries and the development of the business or institutional networks. In this industry 4.0 era, incubation centers must encourage the development of businesses based on innovation, creativity, and science and technology (Aditya, 2017b).

In response to these issues, collaboration and communication among quadruple helix creative actors are necessary. The Deputy for Coordination of Creative Economy states, "We believe that the involvement of creative actors is the primary factor in the formation of creative cities. They are the government, communities, academics, and business people (quadruple-helix) in sharing tasks and roles, resulting in collaborative and synergic efforts in development and utilization of creativity and innovation" (Ministry for Economic Affairs, 2016).

### **Communication Model for Creative City**

As the driving force of the development of Yogyakarta is a creative city, each actor has carried out its role. Nevertheless, the communication that occurred among actors has not been yet optimal. There were complaints from several actors who felt that other actors had not been serious in carrying out their roles. The government should have engaged in an association like Jogja Creative Society in the development process as it represented leading creative class within the community. On the other hand, the government had blamed on the budget, and the vastness of the city of Yogyakarta causes public space for the creative economy to be limited. All of these indicate that the coordination between local government agencies was low.

Another issue of communication was that the communication between the creative economy group within the community and the private sector was scarce. A shallow understanding of the private sector of creative cities may become the source. Also, the private sector still tended to orient itself toward profit. The further impact was the slow pace of the private sector in initiating and cooperating with other creative actors in developing and supporting creative city development programs. The government often has to be the initiator. Thus, there should be a communication model that enables all creative actors in Yogyakarta to interact with each other.

Based on the in-depth interviews with creative actors of Yogyakarta, added with observation toward creative community groups, a communication model must enable all

actors to discuss with four primary purposes: to inform, to consult, to collaborate, and to empower. For the purpose 'to inform' creative actors, one can use one-way communication channels such as emails, newsletters, circulars, and websites. Also, for the purposes 'to consult' and 'to collaborate,' dialogue or two-way communication need to be employed. These channels can be in the form of communication forums, workshops, exhibitions, or focus group discussions. Two-way communication enables each actor to communicate and express ideas, where creativity can grow, and innovation is born. At the same time, it also builds multi reciprocal relationships among creative actors.

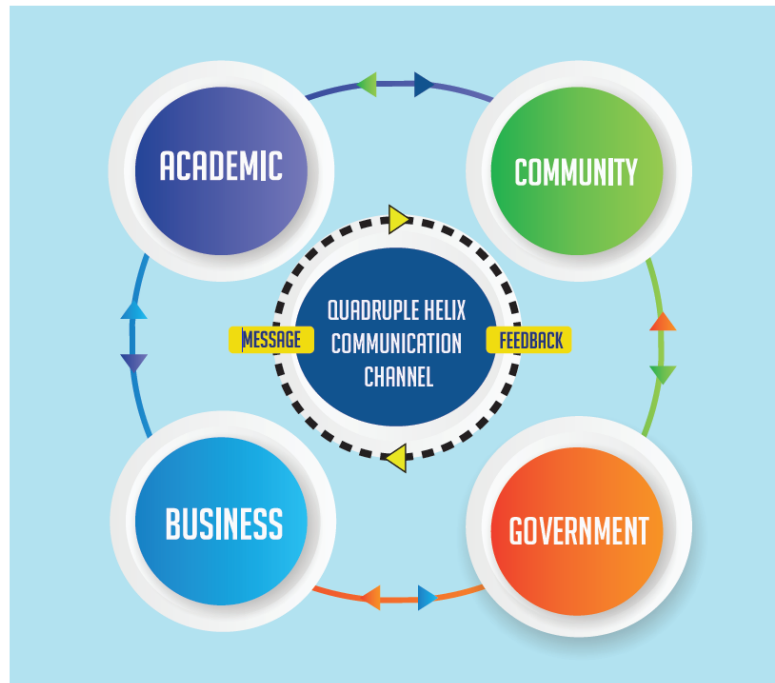


Figure 3. Quadruple Helix Communication Model

The proposed quadruple helix communication model is a development from the transactional model of communication. The emphasis of this model is the provision of space, which becomes the channel of communication for both one-way and two-way communication to emerge.

The implementation of this communication model is beneficial if combined with the stages of developing a creative city as proposed by Landry which includes the growth of the Creative Economy, the maintenance of Creative Classes (creative groups or individuals) and the provision of a conducive environment for the development of creativity (Landry, 2012a). It means that there is two-way communication that occurs among all creative actors in the three stages of the development process of the creative city.

There are some advantages to this communication model. The increase in opportunities for creative actors to provide direct input to the development of supporting policies. The possibility of a more open, two-way, and transparent communication. The model also increases government accountability and a conducive environment for innovation, provide consultation in the policymaking process, so that information delivery is useful, and service is responsive, identify synergies between stakeholders and government. Further, the model drives complex issues in a comprehensive and integrated policy.

The research found that there was still no forum where all quadruple helix actors can discuss the formation of Yogyakarta as a creative city. The preparation of a clear roadmap explaining the phases of the development of Yogyakarta as a creative city can be in conjunction with the policy of creative city provided by the Indonesia Creative Economy Board. Through this model, the government or university can initiate a forum of quadruple helix creative actors with the main task of designing a creative city roadmap. The roadmap must include stages of the development process, necessitated regulations, identified creative class, and design of the city environment that drives the birth of creativity.

The selection of the quadruple helix communication channel depends on the program planned to achieve the designated goal. For instance, to grow the creative mindset of creative community groups, the government of Yogyakarta involved the university as well as the creative industry to collaborate in providing a forum or workshop that encourages creative community groups. Through this program, each creative actor plays significant roles. To date, there has never been a program that involved the collaboration of these four quadruple helix actors in Yogyakarta. Thus, this model proposes that constraints in communication are avoidable if each creative actors involves communication among them.

### **Roles of Quadruple Helix Actors**

The main element in the development of creative cities is humans who can translate concepts, ideas, thoughts, knowledge, and skills as work and creation. Humans are grouped and appreciated according to their respective professions and abilities. In the context of creative cities, these groups are creative actors involved in a model known as the quadruple helix. The development process runs well if each quadruple helix actor can communicate, collaborate, and work together based on their respective roles and tasks.

A creative city must be able to build an ecosystem that is conducive to the development of innovation in the area. The synergies and collaborations with quadruple-helix actors are necessary so that each city can map its basis of excellence and be able to determine strategic steps and ideal program priorities to encourage economic and power improvements competitiveness in the city. Thus, the adoption of the communication model is an effort to encourage the acceleration of the growth of Creative Cities in Indonesia,

Before the implementation of the quadruple helix model, each creative actor tended to work alone. Collaboration merely occurred between two creative actors. This has resulted in the slow development process of Yogyakarta as a creative city. Since its first registration to UCCN in 2014, Yogyakarta has not been successful as a creative city. However, there has been a change since the adoption of the quadruple helix communication model.

Each actor has its role and responsibility for the development of a creative city. They interact, consult, and collaborate in identifying issues, developing, and implementing programs. In the case of the development of Yogyakarta as a creative city, most of the programs involved the collaboration of two or three actors. However, since the adoption of the model, there has been a communication forum that consists of four creative actors. It is a challenge, though, for the government and association like Jogja Creative City to work together in engaging creative community groups with the help of the university. Also, at the same time, creating space that enables the



creativeness of community groups to grow.

Table 1 below describes the role each creative actors played in the development of Yogyakarta as a creative city.

Table 1. Roles of quadruple helix actors in the development of Yogyakarta as the creative city

University	Industry	Community	Government
<ul style="list-style-type: none"> <li>▪ Conducting research, creating innovation, protecting intellectual property rights that have an impact on the creative economy.</li> <li>▪ Collaborating with local government in providing consultation, workshops, and formulating regulation at the local government.</li> <li>▪ Providing creative graduates essential for the growth of the creative economy of the city.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Trough CSR programs, providing programs and funding for the growth of the creative economy in the community.</li> <li>▪ Collaborate with other creative actors (university and government) in sharing knowledge of how to grow the creative economy.</li> <li>▪ Providing access for the creative community to a strong market.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Elaborating their creativity under the guidance of the government.</li> <li>▪ Affiliating with other communities with the same interest to grow and expand.</li> </ul>	<p>Central Government:</p> <ul style="list-style-type: none"> <li>▪ helping to map the economic potential and creative actors in each region.</li> <li>▪ providing regulation that supports the growth of the creative economy.</li> </ul> <p>Local government:</p> <ul style="list-style-type: none"> <li>▪ fostering and developing a creative economy within the community.</li> <li>▪ promoting the products of the creative economy from the community.</li> <li>▪ Creating communities and communication forums of creative economy actors.</li> <li>▪ Creating space for the creative economy to grow</li> </ul>

The central government had issued some acts that support the development of creative cities. They include Act No. 20 of 2008 concerning MSMEs, Act No. 33 of 2009 concerning Film (reassuring the growth of the film industry), Act No. 3 of 2014 concerning Industry (promising the national development of creative industries), Act No. 28 of 2014 concerning Copyright (provides the protection of intellectual property right for creative products), and Act No. 7 of 2014 concerning Trade (Encourages trade in creative economy-based products).

The government of Yogyakarta developed some strategies. They included strategies based on regional economic development, based on the development of innovative & creative products, based on the development of service infrastructure, and the development strategy of production centers. The government, in collaboration with the university, worked in formulating regulation on the creative city. Up to now, the regulation draft on the creative city of Yogyakarta is still under discussion at the House

of Representatives to obtain approval. Meanwhile, the division of responsibilities became the solution to the issue of coordination between government agencies. The Industry and Trade Agency is responsible for developing and enhancing the creative abilities of the creative economy actors. The Tourism Office, on the other hand, is responsible for promoting creative products and finding markets.

In some universities, the business incubator has become an exciting research program that helps the creative community to develop its creative product and later distribute it to the market. In some cases, the program also covers a series of funding and training capital, accompanied by partnership support. The aim is to ensure that incubator participants (usually MSME owners/companies in the early stages) have the right organizational and financial management, have a sustainable business model, and can have a positive impact on society. Lecturers share their knowledge through workshops. Others invite successful creative actors to motivate and inspire the creative community.

Industry in Yogyakarta, through its CSR programs, also contributed to the development of the creative city. A good case was Bank of Rakyat Indonesia's 'creative home' program. This program provides a place for SMEs and creative actors to collaborate to fill their deficiencies in order to enter the local and international markets. Also, it develops and implements start-up, incubation, and partnership or co-business programs.

The concept of a creative city raises criticism of life's problems, but also has a role in finding creative solutions in overcoming the problems they face every day. The community plays the role here. It becomes one of the actors in urban areas. Creative city empowers all groups, including the community, to be able to think creatively and solutive for the problems of the city. Youth communities who have creative and solutive ideas should be empowered. Community ideas that are usually out of the box become ideas that can solve a problem in a city. Creative communities build connectivity throughout stakeholders, as well as network, synergize, and collaborate. Every activity undertaken by the creative community must leave three traces: physical, social, and economy (Manaba, 2017). What is also essential in this creative city development is how creative economic actors can feel the necessary experience in their creative process (Yusof, 2014).

The position and role of the Community in the quadruple helix are very strategic for the region. The community works to shape the ecosystem and foster initiative, participation, and enthusiasm. Community is the heart in the creative economy development process; if the heart is no longer beating, then all processes will cease. If the heart becomes passive, the development of the creative economy will not work well and correctly.

Despite the intensive role and collaboration that had occurred among quadruple helix actors, the government of Yogyakarta should have played a more significant role in this process. It must be the initiator as well as the facilitator for the development of Yogyakarta by gathering all relevant actors. The argument is because the government acts as the regulator and manages the city activities.

In some cases, the problem emerged in the process. The communication and coordination between government and community, such as Jogja Creative Society, needed more attention. As an association of creative people that care for Yogyakarta to be a creative city, the government tended to ignore the idea from this community group that consisted of lecturers, architects, artists, and opinion leaders. Thus, if the

government committed to the idea of creative city development, it must attempt to gain the full support of all creative actors.

The implementation and integration of the quadruple helix communication model and Landry's stages of the development of the creative city are essential. The goal is to build a city that provides access to services and facilities for the needs of the physical environment; a city where humans can build communities so that a conducive social environment is available; cities that can provide opportunities for citizens to develop their creative potential; and a city that can create aesthetically pleasing environment (Frey, 2003).

Therefore, this research is essential to provide new insight into the process of creative city development. The proposed communication model, however, still needs improvement, for example, considering the impact of communication, or adding communication objectives along with the development of the helix concept.

### Conclusion

The quadruple helix communication model helped to map the communication that occurred among actors in the development planning of Yogyakarta as a creative city. There are two communication approaches to this model, namely, one-way and two-way communication. The use of one-way or two-way communication relates to the achieved goal: to inform, to consult, or to collaborate. Further, it then determines the choice of quadruple helix communication channels such as information sessions, emails, newsletters, circulars, websites, focus group discussions, workshops, panel meetings, seminars, communication forums, and other forms. By understanding and adopting the model, the development process of Yogyakarta to be a creative city, especially in the involvement of creative actors, became relatively easy. It also reduced communication constraints that occurred before the model adopted.

The research recommends that the government of Yogyakarta needs to take part as initiators of programs in developing the creative city. This communication model requires multi reciprocal relationships among creative actors to succeed. Thus, programs that engage all actors are necessary.

Research around creative cities and communication is still scarce. Most research on communication was conducted around branding and image of creative cities (Das, 2016; Prilenska, 2012; Vanolo, 2015), while research on the communication model in developing a creative city does not yet exist. Thus, there are still wide possibilities for further research.

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