

การรับรู้ความสามารถของตนเองในการทำงานร่วมกับภาคเอกชน ภายใต้โครงการ Talent Mobility ของนักวิจัยในมหาวิทยาลัย

University Researchers' Self-Efficacy for Working with Private Sector in Talent Mobility Program

วัลลพ ล้อมตะคุ¹, มัลลิกา สังข์สนิ²

Wanlop Lomtaku¹, Mullika Sungsanit²

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โครงการ Talent Mobility ริเริ่มขึ้น โดยมีวัตถุประสงค์เพื่อส่งเสริมการเคลื่อนย้ายบุคลากรด้านการวิจัยและพัฒนาจากสถาบันวิจัยของรัฐและมหาวิทยาลัยไปทำงานยังบริษัทเอกชน เพื่อบรรเทาปัญหาการขาดแคลนบุคลากรด้านวิจัยและพัฒนาในภาคเอกชน แต่ปัจจุบันมีนักวิจัยจากภาครัฐเข้าร่วมโครงการไม่มากนัก ทั้งๆ ที่สำนักงานคณะกรรมการนโยบายวิทยาศาสตร์ เทคโนโลยีและนวัตกรรมแห่งชาติได้ส่งเสริมปัจจัยจูงใจภายนอกให้อย่างต่อเนื่อง ทั้งนี้หากส่งเสริมปัจจัยจูงใจภายใน เช่น การรับรู้ความสามารถของตนเอง จะช่วยให้นักวิจัยในมหาวิทยาลัยเข้าร่วมโครงการ Talent Mobility มากขึ้นหรือไม่ งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาการรับรู้ความสามารถของตนเองของนักวิจัยในมหาวิทยาลัย ในการทำงานร่วมกับภาคเอกชนภายใต้โครงการ Talent Mobility ผู้วิจัยได้ดำเนินการศึกษาวิจัย โดยการสัมภาษณ์เชิงลึกกลุ่มตัวอย่าง คือ นักวิจัยในมหาวิทยาลัย จำนวน 30 คน ทั้งที่เคยเข้าร่วมและไม่เคยเข้าร่วมโครงการ Talent Mobility และวิเคราะห์ข้อมูล โดยการวิเคราะห์เนื้อหา ตามวิธีของ Johnson & LaMontagne (1993)

ผลการวิจัย พบว่า มีปัจจัยที่เกี่ยวกับการรับรู้ความสามารถของตนเองในการทำงานร่วมกับภาคเอกชน ชุมชน ภายใต้โครงการ Talent Mobility แบ่งได้เป็น 5 ด้าน ได้แก่ 1) ด้านการสื่อสาร การถ่ายทอดความรู้ทางวิชาการให้ภาคเอกชน ชุมชน 2) ด้านการหา และหรือ การสร้างเครือข่ายกับภาคเอกชน ชุมชน 3) ด้านการนำความรู้/ผลงานวิจัยเชิงพื้นฐานไปประยุกต์ใช้ และพัฒนาต่อยอดในเชิงพาณิชย์ 4) ด้านการมีความรู้ ความเชี่ยวชาญเพียงพอ ในการแก้ปัญหา/ทำงานวิจัย ให้กับภาคเอกชน ชุมชนได้ และ 5) ด้านการบริหารจัดการงานและเวลา เพื่อให้สามารถเข้าร่วมโครงการ Talent Mobility ได้โดยนักวิจัยที่เคยเข้าร่วมโครงการ Talent Mobility จะมีการรับรู้ความสามารถของตนเองในการทำงานร่วมกับภาคเอกชน ชุมชน สูงกว่า นักวิจัยที่ไม่เคยเข้าร่วมโครงการ Talent Mobility

คำสำคัญ : การรับรู้ความสามารถของตนเอง, นักวิจัยมหาวิทยาลัย, โครงการ Talent Mobility

¹ นักศึกษาหลักสูตรปริญญาปรัชญาดุษฎีบัณฑิต สาขาวิชาเทคโนโลยีการจัดการ สำนักวิชาเทคโนโลยีสังคม มหาวิทยาลัยเทคโนโลยีสุรนารี

² สาขาวิชาเทคโนโลยีการจัดการ สำนักวิชาเทคโนโลยีสังคม มหาวิทยาลัยเทคโนโลยีสุรนารี

¹ Doctoral student, School of Management Technology, Institute of Social Technology, Suranaree University of Technology

² School of Management Technology, Institute of Social Technology, Suranaree University of Technology

Abstract

A Talent Mobility program has been initiated to facilitate the mobilization of research and development (R&D) personnel from public research institutes and universities to private companies. The move should help alleviate the shortage of such personnel in the private sector. However, only a few researchers have joined the program. The National Science Technology and Innovation Policy Office (STI) has promoted many extrinsic motivational factors, but the effort has not been sufficient. If the STI promotes intrinsic motivational factors such as Self-Efficacy, it will help encourage more university researchers to participate in the Talent Mobility program. The purpose of this research was to study university researchers' self-efficacy and determine whether or not it is suitable for working with the private sector in the Talent Mobility program. The data collected in this study included in-depth interviews with researchers, who had participated in the Talent Mobility program, and those who had not. The data were analyzed using content analysis following Johnson & LaMontagne (1993). The results indicated that the Self-Efficacy for working with private sector could be divided into five areas: 1) communications and transfer of knowledge to the private sector, 2) finding and building networks with the private sector, 3) applying basic knowledge from research results for development and commercialization, 4) having sufficient knowledge and expertise to research and solve problems with the private sector, and 5) management of work and time to collaborate with the private sector. The researchers who had participated in the Talent Mobility program had a higher Self-Efficacy to work with the private sector than the researchers who had not participated.

Keywords: self-efficacy, Talent Mobility program, university researcher

Introduction

The Talent Mobility program was initiated by the National Science Technology and Innovation Policy Office (STI). The program has facilitated the mobilization of R&D personnel from public research institutes and universities to work with private companies in order to reduce the shortage of research and development personnel in the private sector. The program was launched in 2015, and STI has explored numerous external environmental factors and incentives to encourage researchers to join the

program. For example, STI set up a federal agency that helps facilitate the coordination between researchers in universities and enterprises, encourages the adaptation of regulations that enable researchers to work with the private sector, provides compensation to universities hiring researchers to work with the private sector, and provides compensation for researchers and research assistants, etc. However, despite all efforts, it was found that only a few researchers joined the program (Lomtaku & Sungsanit, 2017). From 2013 to 2017, only 549 researchers from the public

sector participated in the Talent Mobility program, which accounted for only 1.49 percent of the 36,749 science, technology and innovation personnel in Thailand (STI., 2017).

Self-efficacy applied in this research is based on the Self-Efficacy Theory (SET) presented by Bandura (1977). An organization's personnel will seek to meet demand and choose activities that are a challenge to their internal motivation (Eccies, 2002). This intrinsic motivation exists when individuals feel that they have the ability and the freedom to set their own activity. This corresponds to the definition of self-efficacy (Bandura, 1986), which is the assessment of personnel's ability to create and manage their desired actions in order to accomplish sets of tasks. Self-efficacy is the most important variable leading to a change in the behavior of people, and behavior is heavily influenced by a belief in personnel's ability to be able to practice that behavior (Bandura, Adams, Hardy & Howells, 1980).

The problem of having only a few researchers participating in the Talent Mobility program has not yet been solved. Self-efficacy seems to be the intrinsic motivational factor that most influences participation / non-participation in the Talent Mobility program.

Objective

To study university researchers' self-efficacy and determine whether it is suitable for working with the private sector in the Talent Mobility program.

Methodology

This study uses qualitative research by using in-depth interview technique to explore university researchers' self-efficacy in working with the private sector under the Talent Mobility program. The concept of self-efficacy proposed by Bandura (1986) is the self-assessment of personnel about their ability to create and manage desired actions in order to accomplish a set of tasks. The researchers applied this self-efficacy concept as its operational definition to assess their own capabilities about working with the private sector and to achieve the stated goal of applying their professional expertise in the private sector.

Population and Sampling: The key informants in this study were 30 university researchers in science technology and innovation. They were divided into two groups: a group of 18 who had previously participated in the program, and a second group of 12 who had worked in the same or related faculties with researchers who had participated in the Talent Mobility program. Sampling was accomplished by using the quota Sampling method and determining that the proportion of sample in both groups was similar.

Measurement: The researcher developed a Semi-Structured interview that included open-ended questions about the university researchers' self-efficacy in working with the private sector under the Talent Mobility program, which followed the Self-Efficacy theory (Bandura, 1986).

Data Analysis: Data analysis used content analysis by Johnson and LaMontagne

(1993): Six steps were involved in the analysis:

(1) Data preparation, (2) Familiarity with the data, (3) Identification of the unit of analysis, (4) Tentative categories, (5) Refined categories, and (6) Category integrity.

Results

Thirty individuals were interviewed; most were male (80%). The sample population was divided into 18 people who had participated in the Talent Mobility program and 12 people who had not participated in the program.

The results show that the samples had self-efficacy for working with the private sector under the Talent Mobility program. This conclusion can be reached after evaluating the following 5 categories: 1) Communications and the transfer of knowledge to the private sector, 2) Finding and building networks with the private sector, 3) Applying basic knowledge / research results for development and commercialization, 4) Having sufficient knowledge and expertise to research and solve problems with the private sector, and 5) Management of work and time to collaborate with the private sector.

Table 1 shows the number of times each category was mentioned (*f*) and the number of informants who mentioned each category (*n*). This sampling enabled a comparison between self-efficacy of university researchers', who had participated in the Talent Mobility program, and those who had not. (*n* = 30).

(Categories)	the number of times the information was mentioned (<i>f</i>)		the number of informants who mentioned it (<i>n</i>)	
	Participated (<i>N</i> =18)	Not participated (<i>N</i> =12)	Participated (<i>N</i> =18)	Not participated (<i>N</i> =12)
1. Communications and the transfer of knowledge to the private sector	12	2	5	2
2. Finding and building networks with the private sector	24	29	15	8
3. Applying basic knowledge / research results for development and commercialization	31	8	14	4
4. Having sufficient knowledge and expertise to research and solve problems with the private sector	30	14	14	9
5. Management of work and time to collaborate with the private sector	14	20	11	8

Table 1 shows that the samples in the group, who had participated in the Talent Mobility program, talked mostly about self-efficacy in applying basic knowledge/ research results for development and commer-

cialization (*f* = 31, *n* = 14). Next, Table 1 shows self-efficacy in having sufficient knowledge and expertise to research and solve problems with the private sector (*f* = 30, *n* = 14). Then the Table shows self-efficacy in finding and building

networks with the private sector ($f = 24, n = 15$), self-efficacy in management of work and time to collaborate with the private sector ($f = 14, n = 11$). Finally the samples that talked the least about self-efficacy in communications and transfer of knowledge to the private sector ($f = 12, n = 5$) are shown. The samples in the group who had not participated in the Talent Mobility program talked mostly about self-efficacy in finding and building networks with the private sector ($f = 29, n = 8$). Next was self-efficacy in management of work and having time to collaborate with the private sector ($f = 20, n = 8$), self-efficacy in having sufficient knowledge and expertise to research and solve problems with the private sector ($f = 14, n = 9$), and self-efficacy in applying basic knowledge / research results for development and commercialization ($f = 8, n = 4$). These samples spoke the least about self-efficacy in communications and transfer of knowledge to the private sector ($f = 2, n = 2$).

A comparative analysis of university researchers' self-efficacy for working with the private sector under the Talent Mobility program among researchers who had participated and those who had not is summarized below.

Communications and transfer of knowledge to the private sector.

The samples in the group who participated in the Talent Mobility program discussed this dimension the least. The samples mentioned this category just 12 times out of 111 times the category was mentioned, representing just 10.81 percent. Also, only 5 out of 18 people (27.78%) discussed this dimension. Researchers who have high self-efficacy in communications,

and transfer of knowledge to the private sector, said this skill is difficult. Especially challenging is communicating with employees or people in the private sector who have limited knowledge of the topic of their expertise. However, most samples thought it possible to communicate and transfer knowledge. Examples of what the researchers said include: "Researchers talk with workers to develop their skills because they are not engineers; they do not have technical knowledge. Researchers need to make the workers understand the researcher's goal of 'wanting to do it correctly'. Some company owners do not have a high level of education and using the correct vocabulary became a problem.

The sample group that did not participate in the Talent Mobility program discussed the communications and transfer of knowledge factor the least. They only mentioned it two times out of 73 times the categories were mentioned (2.74%). Only 2 out of 12 people mentioned this dimension, representing just 16.67 percent of university researchers' self-efficacy. This dimension of self-efficacy is relatively low for this group and these individuals indicated that it was difficult and they didn't want to communicate and transfer knowledge to the private sector. Examples of the researchers' words included: "the company owners would expect me to solve it, but they did not provide much information. Only the worker's manager would cooperate with me. The workers did not cooperate, so I did not participate with the private sector."

Finding and building networks with the private sector.

The group who participated in the Talent Mobility program discussed this dimension 24 times (21.62%) and 15 individuals (83.33%) mentioned this topic. Most researchers in this group have high self-efficacy in this dimension, which is finding and building networks with the private sector. These researchers found it not difficult because they already have a strong network including organization networks, private sector alumni, and community networks. Examples of the words of the researchers include: "There are companies interested in working with me, they will find a researcher. If the companies fix the problem themselves, the research and development costs are relatively high (small company). I wanted to find a grant from the government to help the company to ease the burden on the budget."... "I have a connection already, I looked into several industries especially small and medium enterprise, I want them to develop their products, but they do not have enough money and I see this project, which has a budget, can help them."

The group of researchers who had not participated in the Talent Mobility program discussed this dimension more than the other dimensions. The samples mentioned this dimension 29 times (39.73%) with 8 individuals mentioning it (66.67%). Most researchers in this group had low self-efficacy in this dimension. They had the perception that it was difficult to find and build networks with the private sector. Only 8.33% of the researchers in this group

were able to find or build a network with the private sector. The researchers said: "To find a company in the Talent Mobility program is quite difficult. I was not formally introduced to each company, so asking them if they had any problems drew limited response. In a project involving the Department of Industrial Promotion, some companies had already told researchers that they wanted researchers to help resolve any issues." Their comments were "Researchers in Bangkok are closer and easier to access than researchers in the provinces, they had fewer opportunities to meet with the private sector "

Applying basic knowledge/ research results for development and commercialization

The group who participated in the Talent Mobility program discussed this dimension 31 times (27.93%), and 14 of the individual samples (77.78%) mentioned this dimension. Most researchers in this group have high self-efficacy in this dimension. They thought that applying basic knowledge / research results for development and commercialization are not difficult because they already do these in their research work. A few researchers were good at basic research work, but were unable to get involved in teams in which the professors had already done application research. Example words of the researchers included: "Most of the researchers collaborate with experts in other disciplines. Normally, researchers do not research with the private sector in applied research, The researchers use basic research to solve problems, and the company has many

problems, and some problems cannot be solved, but I find ways to solve them” In contrast, the group who had not participated in the Talent Mobility program mentioned this dimension just eight times (10.96%), and only 4 people (33.33%) of the individuals mentioned this aspect. Most researchers in this group have low self-efficacy in this dimension. These researchers tend not to see how their knowledge and basic research can be applied and further developed to be commercially viable. Some good researchers thought that their research results were not useful for commercialization. Some regarded research work for commercialization rather cumbersome. Several researchers also said they enjoyed working on basic research. Examples of what these researchers said include: “I feel that my own research project was not ready to participate with the Talent Mobility program because it must engage well with industry. My research has not reached the stage where it is possible because it was still only preliminary research in lab scale unlikely to reach the so-called commercial or commercial prototype for all.”... “I think that the private sector needs more research benefits. The research output will reveal a secret. There are many difficulties”

Having sufficient knowledge and expertise to research and solve problems with the private sector.

The group who participated in the Talent Mobility program discussed this dimension 30 times (27.03%) and 14 individual researchers (77.78%) mentioned this dimension. Most researchers in this group have high self-efficacy

in this dimension. Most of these researchers ensure that they have sufficient knowledge and expertise and that they can solve problems and do research with the private sector. Some researchers in this group primarily talk and work with the private sector and they have the skills to do it. Examples of these researchers’ words include: “The problems in private companies are complex and an appraisal by STI is strict, but the researchers were not pressured because they had to work like this before. Researchers viewed it as a challenge; it was another stage that the researchers could show when working with the private sector.”.... “Researchers do research in the Talent Mobility program just like the company itself. Some company owners trust researchers. The researchers can build confidence by their actions following an agreement with them.”....“ I make a decision to operate on the potential that I have. We need to understand the company’s needs if they expect us to help them.”

The group who had not participated in the Talent Mobility program mentioned this dimension 14 times (19.18%) and 9 researchers (75%) mentioned this dimension. Most researchers in this group have low self-efficacy in this dimension. They tend to view the private sector as having high expectations. They are not comfortable with the high expectations of a private company. To do this work, the researchers needed help from a student or research assistant. Researchers will seek solutions that meet their own expertise. The types of things the researchers said in this group include:

“To do the Talent Mobility program, the companies expect a substantial contribution. The private sector wants to see the establishment of a clear and concrete output.”.... “Working with companies comes with high expectations from the companies”... “If it is involved research, it requires a team to help. It needs students to help and it takes more time”

Management of work and time to collaborate with the private sector.

The group who participated in the Talent Mobility program discussed this dimension 14 times (12.61%) and 11 researchers (61.11 %) mentioned this dimension. Most of the researchers in this group had high self-efficacy in this dimension. Their ability to manage work and time allows them to frequently participate in the Talent Mobility program, and they have flexible schedules. These researchers said things such as the following: “In the Talent Mobility program, there is a date that we can manage.”... “My jobs have already been reduced, I have the time to do this project and I can do my basic research for publication too, but I focus on application to solve the real problems.”

The group who had not participated in the Talent Mobility program mentioned this dimension 20 times (27.40%). Most researchers in this group had low self-efficacy in this dimension. Most of them were unable to attend to the Talent Mobility program because of workload, research, personnel, or family burdens. Samples of what these researchers said were: “I am not afraid, but actually in the practical sense, it has hindered me in many different ways. The data used for doing

research comes from the private sector. To gain insight from industry, researchers must often go to the job site. Travelling is a barrier for me because I cannot go very often”... “Moving researchers in our university is relatively difficult because they have a heavy workload.”

Conclusion

In the discussion, the university researchers were divided on how to assess self-efficacy for working with the private sector. Their discussions centered on using those who had attended the Talent Mobility program and those who had not as a guideline.

Self-efficacy for communications and transfer of knowledge to the private sector.

The researchers who participated in the Talent Mobility program had high self-efficacy in the field of communications and transfer of knowledge to the private sector. Communications and transfer of knowledge to the private sector are difficult. These researchers thought that it was possible to communicate with the private sector employees or community members who don't have expertise in the researchers' field. Contrarily, the researchers who never participated in the Talent Mobility program had relatively low self-efficacy in this dimension. They thought that communication and transfer of knowledge to the private sector was difficult and they did not want to communicate and transfer knowledge to the private sector. The Talent Mobility program is a project that requires the ability to communicate and transfer knowledge to the private sector at large. Therefore, researchers who have high self-efficacy in this field will participate in the

Talent Mobility program, while the researchers who have low self-efficacy in this field will not join the Talent Mobility program. Consistent with the concept of Bandura (1997), people tend to avoid difficult circumstances that exceed their ability. They will choose activities that will benefit from their abilities.

Self-efficacy for finding and building networks with the private sector. The researchers who participated in the Talent Mobility program have high self-efficacy in finding and building networks with the private sector. They thought that finding and building networks with the private sector was not difficult. They tended to already have formed networks including organizational networks, private sector alumni networks, and community networks. On the other hand, the researchers, who never participated in the Talent Mobility program, had relatively low self-efficacy in this dimension. They thought that it was hard to find and build private sector and community networks. Only 8.33 percent of these researchers are able to find and build a network with the private sector and the local community. The researchers who had already found a network with the private sector have a high self-efficacy in this area and, they tend to participate in the Talent Mobility program. The researchers who have not affiliated with the private sector and the community tend to have low self-efficacy in this dimension and they tend not to participate in the Talent Mobility program. Consistent with the concept of Bandura (1997), direct experience affects self-efficacy. People who have self-efficacy recognized that they have ability and skills

useful in practice and the ability to achieve the desired goal.

Self-efficacy for applying basic knowledge / research results for development and commercialization.

The researchers, who participated in the Talent Mobility program, have high self-efficacy in the field of applying basic knowledge / research results for development and commercialization. They have the ability to transfer knowledge and basic research results towards application and further development for commercialization. Since most of these researchers have integrated application-oriented research work already, some of them are good at basic research, but they are able to assist application research teams. In contrast, the researchers who never participated in the Talent Mobility program have low self-efficacy in this dimension. Most of these researchers are not sure how their knowledge and basic research can be applied and further developed commercially. Some good researchers thought application and commercial research was cumbersome and are happy to work in basic research. This research found that researchers who had participated in applied and integrative research already had a high self-efficacy in this dimension and tended to participate in the Talent Mobility program. In contrast, researchers, who do not frequently work in application-oriented research, have low self-efficacy in this area and they tend not to participate in the Talent Mobility program. Consistent with the concept of Bandura (1997) one's direct experience affects their self-efficacy

in this area. People who have self-efficacy recognized that they have the ability and skills useful for practice and know they can achieve the desired goal.

Self-efficacy for having sufficient knowledge and expertise to research and solve problems with the private sector.

The researchers who participated in the Talent Mobility program also have high self-efficacy in the field of having sufficient knowledge and expertise to research and solve problems with the private sector. Most of these researchers are confident that they have sufficient knowledge and expertise in problem solving and that they can successfully do research for the private sector. Researchers who primarily talk and work with the private sector have sufficient skills. In contrast, the researchers, who never participated in the Talent Mobility program, have low self-efficacy in this dimension. They think that the private sector has high expectations and that they may not meet the expectations of the private sector. The researchers are able to do this when they have students or research assistants who desire to solve these problems and have the proper expertise. The Talent Mobility program is a project that requires researchers to have adequate knowledge and problem-solving expertise to do research with the private sector and the local community. Therefore, researchers who have high self-efficacy in this field, tend to participate in the Talent Mobility program. In contrast, researchers who have low self-efficacy will not join the Talent Mobility program.

Consistent with the concept of Bandura (1997), people tend to avoid difficult circumstances that exceed their ability. Individuals will choose their own activities and make sure that they have the ability to be successful in their work.

Self-efficacy for the management of work and time in collaborating with the private sector.

The researchers, who participated in the Talent Mobility program, have relatively high self-efficacy in managing their work and time in collaborating with the private sector. They can manage their time in order to be able to participate in the Talent Mobility program and they are able to manage a flexible schedule. Researchers, who never participated in the Talent Mobility program, have relatively low self-efficacy in this dimension. The main reasons that these researchers were unable to participate in the Talent Mobility program is that they had trouble balancing their teaching and research workload or they had family burdens. The researchers who have high self-efficacy are able to manage work and time to collaborate with the private sector and thus they will participate in the Talent Mobility program. In contrast, the researchers who have relatively low self-efficacy in the management of work and time for collaborating with the private sector will not join the Talent Mobility program. Consistent with the concept of Bandura (1997), people tend to avoid difficult circumstances that exceeded their ability. Individuals will choose their own activities to make sure that they have the ability to work successfully.

Application

This research found that researchers who participate in the Talent Mobility program are mostly people who have high self-efficacy in five aspects: 1) communications and transfer of knowledge to the private sector, 2) finding and building networks with the private sector, 3) applying basic knowledge / research results for development and commercialization, 4) having sufficient knowledge and expertise to research and solve problems with the private sector, and 5) management of work and time for collaborating with the private sector. Most researchers who do not participate in the Talent Mobility program are people who have low self-efficacy in some or all of these five areas.

This research focuses on the development and promotion of university researchers to have greater self-efficacy in working with the private sector and the local community. This greater self-efficacy will increase the number of researchers that participate in the Talent Mobility program, which will help solve the problem of a shortage of researchers in the private sector and local communities and boost the innovation-driven economy of the country.

Suggestion

Researchers who have low self-efficacy and work with the private sector need encouragement and mentoring to participate in the Talent Mobility program. This can be achieved by encouraging researchers who have experience working with the private sector to

persuade non-experienced researchers to work together on research teams. By working in teams the researchers will gain experience and skills in working with the private sector such as 1) developing communication skills, 2) developing their ability to transfer knowledge to the private sector and the local community, 3) building a network with the private sector and the local community, 4) bringing more knowledge / research results into applications and further commercialization on their own, 5) gaining experience in problem solving and doing research with the private sector and the community, and 6) learning to better manage time and work.

There should be a study of other intrinsic motivational factors that affect participation in the Talent Mobility program by university researchers such as growth mindset, the need for competence, need for autonomy or need for relatedness.

There should be a comparative study of university researchers' self-efficacy for working with private sector between before and after participation in the Talent Mobility program.

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