

TRIZ for University Career Development Education

Kiyohisa Nishiyama¹, Emanuel Leleito¹ and Nobuaki Sakai¹

¹ Nagoya University, Furo-cho, Chikusa-ku, Nagoya, Japan
nishiyama.kiyohisa@e.mbox.nagoya-u.ac.jp

Abstract. This unpredictable globalizing society currently requires university students to design their own career as an independent individual. So, career development education, a popular topic also in Japan, should be customized assuming diversifying students' backgrounds. Continuing from last year, the authors are developing a practical career education program for university international students by using TRIZ at Nagoya University (NU), Japan. Last year, the authors applied learning activities with TRIZ for solving problems that actually exist in our society. However, many of the solution proposals were ambiguous or unrealistic. So, this year, the authors focused on a problem familiar with the students in their university life as a main topic to be discussed in the lecture. This paper presents the further development of the application of TRIZ to career development education with the details of the course, its concrete products, and its future prospects. The lecture focused to develop strategies how to survive job interviews, which have been struggled by many of the international students according to the opinions gathered by Career Service Office, by using the basic TRIZ tools, the problem definition strategy such as "If-then-but statement" and "40 invention principles". In addition, the solution concepts for the problem, "Japanese students and international students cannot be integrated.", which the students were asked to propose with TRIZ as the final assignment, were feasible expanding the possibility of university career education. According to the interview and questionnaire performed after the lecture course, it seemed many students have picked up the clues of career development intended by the lecturers.

Keywords: Career development, international students, education

1 Introduction

1.1 Research Background

Being influenced by the recent globalization, Nagoya University (NU), Japan, has started Global 30 International Program (G30) since 2011, where the students study subjects in English [1], while the other programs educate students in Japanese language.

Our society is said to be unpredictable due to recent rapid globalization and development of information technology. This trend requires universities to emphasize career education to train students who can individually adapt and survive any fluctuating situations. NU also provides educational opportunities for career development, which are

provided mainly for Japanese students, such as lecture talks by successful business persons, strategies to write a good CV, domestic employment processes. The students in G30 program do not have model case of career development to follow and have less opportunity to think about their own career developments.

While the typical contents of career education are made on the premise that the future is an extension of the present condition with a stereotype that one should define a goal, John D. Krumboltz pointed that unpredictable events play important roles for effective career development in 21st century; So, one should actively take advantage of the events. This idea, "Planned Happenstance Theory [2]", more agree with the situation of international students who are with various backgrounds and need to survive this unpredictably fluctuating age than the conventional stereotypes.

1.2 Lecture for Career Development

The authors, two international student advisers and a career support advisor are in charge of career development education for the G30 students mainly through a lecture course "Introduction to Career Development Theory". This lecture course was started initially aiming to teach the international students in G30 special working cultures in Japan.

The lecture, which uses TRIZ for group activities, have started since 2016 aiming at encouraging the students to have the idea that any future problems may be positively challenged on the basis of the idea of "Planned Happenstance Theory" [3]. The authors were attempting to exploit TRIZ concept to carry the message, "It may be more important to respond positively to the familiar problems in your life such as human relationship, research and others rather than thinking about distant future problems." to the students.

In the lecture, the students were asked to select and solve an arbitrary problem recognized in their life through group discussion." If-then-but statement" was used to clearly define the problem and "40 inventive principles"[4][5][6] were introduced to generate solution concepts.

The students successfully picked up a problem from our society and generated some solution concepts, but it seemed that they may not have understood the clues of "Planned Happenstance Theory". The problems selected by the students was, for example, a problem found in a news. Proposing a feasible solution for such a problem requires highly specialized knowledge. In addition, students who are not familiar with the problem may not have joined the group discussion. These lacks of guidance may have obscured the activity goal. So, it has been recognized as a point to be improved that problems for the group discussion should be a clearer and more sharable topic by the students of various fields with more organized guidance provided by the lecturers.

This paper presents the details of improved lecture carried out in 2017, where 8 G30 students from various fields have participated, and outcomes of implementation of revised activities exploiting TRIZ concepts.

2 Improved Lecture Contents

2.1 Associating TRIZ with Career Development

To associate the concept of TRIZ with career development based on “Planned Happenstance Theory”, tough interview questions experienced in job seeking processes of NU senior students, which has been identified by Career Support Office, was introduced in the lectures. Below items are the example of interview questions that may be advantageously answered by knowing the TRIZ concepts.

- (1) What did you do best in your college life? (How do you think that can be used in the company or society?)
- (2) What was difficult thing and how did you get over it?
- (3) What is your research theme at university? (How did you work on the research and what did you learn from it?)

These questions were introduced to motivate students to learn TRIZ by stressing that a student who proactively solves the sequence of problems faced in university life will be able to answer the questions with confidence advancing the start of his or her career development.

While a typical answer to question (1) and (2) may be “I did all my best on no sleep!”, students equipped with TRIZ may be able to explain their challenges with clear recognition of a problem as a contradiction introducing inventive solutions generated by using “40 inventive principles”, which will probably result in better impression of company interviewers. As for question (3) and (4), it is also better to show clear recognition of a problem as a contradiction rather than stressing being just a hard worker.

2.2 Activities for Group Working

In the lecture, a group working activity has been enhanced with respect to the results of the lecture in 2016. The authors prepared a problem, “Japanese students and international students cannot be integrated.”, to be challenged through group working. This is a significant issue common not only to the faculties, but also Japanese and international students, so the authors expected that the participant international students can equivalently share the problem and join the group working.

In the group working, the students were asked to find problems existing under this problem situation, then define them by using “If-then-but statement” to generate solution concepts by using “40 inventive principles”. They were also asked to cooperatively make and submit 5 minutes video that demonstrates the idea generation process and its outcomes.

3 Feedback from Students

3.1 Solution Concepts Generated by Students

The students, through the video submitted as the outcome of their works, have demonstrated their proactive engagements with the problem “Japanese students and international students cannot be integrated.” generating plenty of ideas to integrate them as more sophisticated solution concepts.

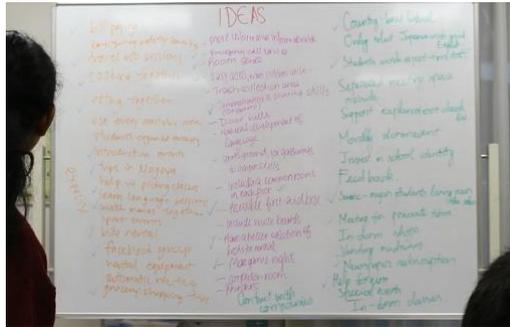


Fig. 1. Large number of ideas generated through group working

The examples of solution concepts are listed below. The solution concepts, which seems more specific and feasible than last year, are from the viewpoints of students that can not be noticed by faculties. Some of them seem even deserve to be challenged.

- Establish English academic clubs such as mathematics, physics, programming, engineering where Japanese and international students can communicate across languages.
- Organize language exchange events where, for example, Japanese learn English and international students learn Japanese.
- Organize food festival or cooking events where Japanese and international students make cultural foods together.
- Rotative tutor system.
- Social event after accommodation orientation, which is the best timing for new students to get to know each other.
- Organize city tours, which aims to introduce important places for life made by

So, the group working has successfully encouraged students with opportunities to cooperatively generate solution concepts engaging all the students.

3.2 Feedbacks from students

At the end of the semester, a group interview session was made to directly listen to the feedbacks from the students aiming to evaluate the accomplishment through the challenges in this year. After the interview session, clue feedbacks were confirmed by using questionnaire to overview the feedbacks from the whole students.

Fig.2 shows the number of the students who recognized the specific lecture contents related to TRIZ, “40 inventive principles” and “How to define a problem.” were useful. 4 in 8 students have evaluated “40 inventive principles” as useful, while 6 in 8 students, which is most of them, evaluated “How to define a problem”, which mainly explained “If-then-but statement” as useful.

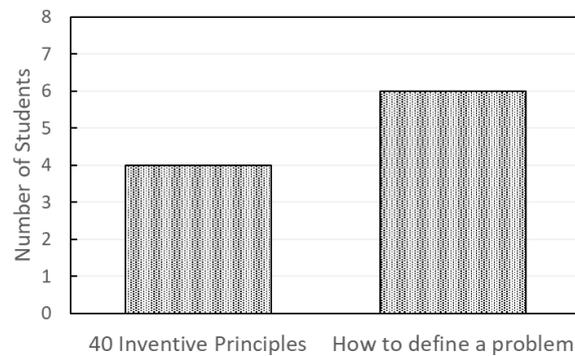


Fig. 2. Number of students who recognized that lecture contents related to TRIZ were useful

In the interview, the authors have asked the question, “Why TRIZ concept is useful for career development?” to the students. The answers were mainly, “Because they are applicable for any problems.”, “It has provided some new ways of thinking.”, “Methodologies finding solutions was interesting.” and “We could learn how to organize a messy situation.”. Fig.3 shows the number of students who agreed with each of the answers as the collective opinion of the students. 6 in 8 students, most of students, were impressed with TRIZ concept as a new way of thinking. So, the authors believe that this lecture has successfully provided a new notion of problems with the students for their career development.

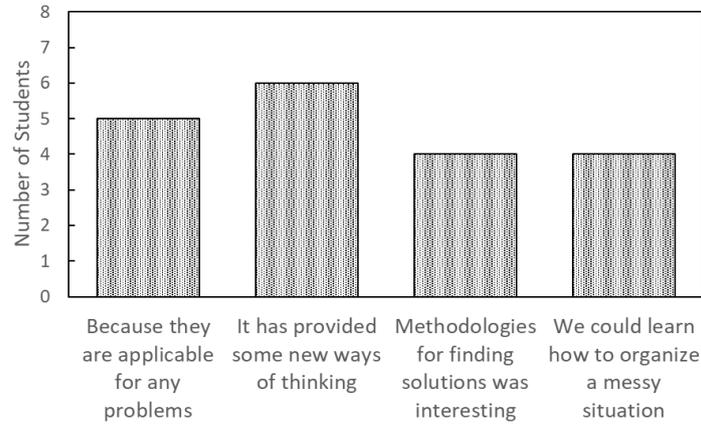


Fig. 3. Number of students who agreed with the reason why the lecture contents related to TRIZ were useful

3.3 Future Challenges

It has been recognized as a remaining problem for the future research. The infancy of the lecture and yearly changes of the class members hinders fair quotative evaluation of the influence of the improvements made in the lecture. So, it is needed to organize strategies to perform more objective evaluation.

4 Conclusion

Since 2016, the authors have been developing a practical career education program for university international students by using TRIZ at NU. The lecture focused to develop strategies how to survive job interviews, which are struggled by many of the international students by using the basic TRIZ tools, the problem definition strategy such as “If-then-but statement” and “40 invention principles”. Then, the problem, “Japanese students and international students cannot be integrated.”, were challenged as a group working to generate solution concepts. The solution concepts generated by the students were more feasible than last year. The student feedbacks obtained through interview session and questionnaire was positive for the application of TRIZ for career development education.

References

1. Nagoya University Global 30 International Programs, <http://admissions.g30.nagoya-u.ac.jp/>
2. Kathleen E. Mitchell, Al S. Levin, John D. Krumboltz (1999) Planned Happenstance: Constructing Unexpected Career Opportunities, *Journal of Counseling & development.* 77:115-124

3. Kiyohisa Nishiyama, Leleito Emanuel, Nobuaki Sakai, Application of TRIZ Concepts to University Career Development Education, TRIZ Future-2017 Conference Proceedings, 2017
4. Gordon Cameron (2010) TRIZICS, Createspace.
5. Michael A. Orloff (2012) Modern TRIZ, Springer.
6. Victor Fey, E.I.Rivin (2005) Innovation on Demand, Cambridge University Press