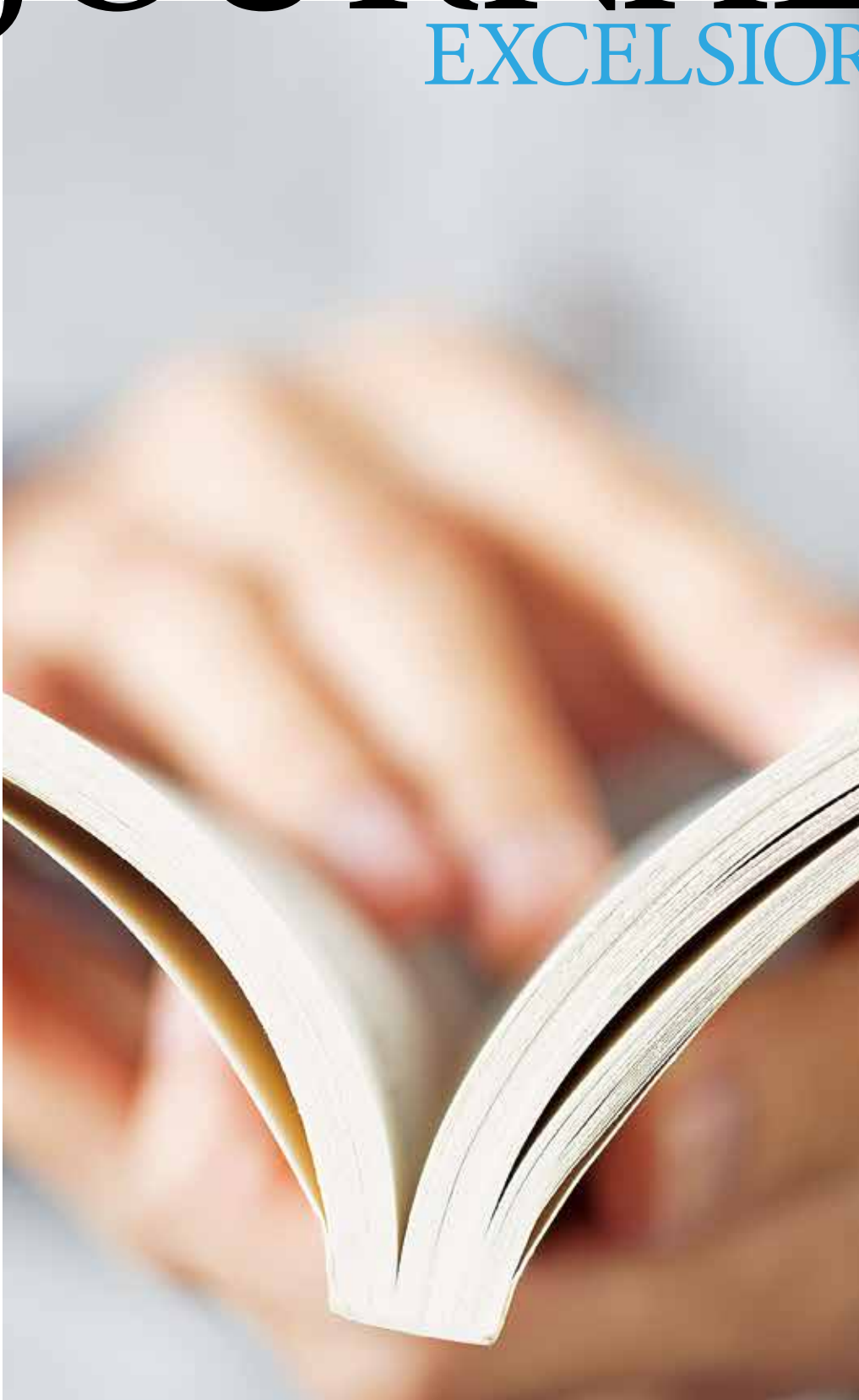


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Vol. 1

THE **JOURNAL**
EXCELSIOR



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EXCELSIOR

Morioka Chuo High School

Morioka Chuo Junior High School

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Greetings from the launch of “The Journal Excelsior”

Expectations for “The Challenge of Change”

TATSUZAWA Naotaka

Trustees, General Manager of Headquarters, Tatsuzawa Education Group

For more than two years since 2020, the entire world has been at the mercy of the new coronavirus, and social and economic activities have been severely affected. In the field of education, schools were closed, online classes were forced to be held for long periods of time, and educational activities were forced to take place in an unprecedented environment. What is taken for granted is no longer the norm, and students have spent their days learning and engaging in activities while being perplexed by the strong restrictions.

This experience has made us appreciate what we take for granted, but it has also made the future more unimaginable, and we are now asking ourselves what kind of school management and education we should provide in this situation. This year, social and economic activities are returning to normal, as the world has made a decision to live with the new coronavirus, but global warming, economic disparity, and unending conflicts remain global issues that must be resolved.

Environmental problems and epidemics have been major threats in the history of mankind, but in the modern era, human factors have added to the difficulty of solving these problems. In addition, there is a sense that we are moving away from a peaceful, safe, and happy society due to excessive economic activities and struggles for supremacy. Against this social backdrop, it is the mission of educators to respond appropriately to the needs of children born and raised, and to work together to create a better society.

The Journal Excelsior is published as an academic journal with contributions from teachers at Morioka Chuo High School, its international sister schools, and domestic partner schools for education from a global, mid- to long-term perspective. Morioka Chuo High School has been advocating the "development of human resources that can play an active role in global society for a long time" and has been conducting global education activities as represented by the CHUO International Education Forum. From the initial international exchange activities, the school has developed into global educational activities and joint

research aimed at solving global issues, and the school, students, and teachers are all working day and night as participants in the global society.

As society changes in this way, schools, education, and teachers need to change accordingly. It is not easy for schools and teachers to adapt to these changes, but it is a challenge that they must continue to take on for the sake of society and their students. In this issue of the Journal, there are many examples of this challenge, and I would like to express my great respect for their efforts. I would also like to offer words of encouragement to the readers of this magazine, and hope that you will join me in promoting these activities for better educational practices.

“Global Education and International Understanding Education”

CHIBA Kenji

Principal, Morioka Chuo High School & Junior High School

Morioka Chuo High School has published the 23rd edition of Excelsior, a commemorative journal of the Global Human Resource Development Program, and now we are pleased to announce the publication of The Journal-Excelsior, a teacher's edition of the same. With the full guidance and support of Professor Komatsu of the Tokyo University of Marine Science and Technology, and with the cooperation of reviewers Mr. Kanaoka, Mr. Kan, and Mr. Kurokawa, we have created a wonderful "accumulation of knowledge". We would like to express our sincere gratitude to all those who contributed to the manuscript.

Morioka Chuo High School and its attached junior high school have been committed to "global education" since their opening.

In general, "education for international understanding" is based on the framework of "nations" in the international community, while "global education" is defined as education that transcends national frameworks and prioritizes the interests of the entire planet, rather than the interests of nations. I hope that the excellent efforts of each sister school will provide us with great suggestions on what we teachers must do for the achievement of the 2030 Agenda-"SDGs" and for the future of our students. I hope that the excellent efforts of each sister school will provide us with great suggestions.

“The Path to the First Issue”

YOZA Hiroaki

Editorial Board Chairman, Vice Principal, Morioka Chuo High School

The Journal-Excelsior, a collection of articles on faculty initiatives for global human resource development, has been launched. The Journal-Excelsior aims to share the experiences of teachers working to develop global human resources at schools in the network and to expand the circle of learning across borders. The first issue of The Journal-Excelsior features 13 papers from Japan and abroad on teachers' efforts in this area. We are confident that this issue will be a source of learning and motivation for many teachers who are struggling on the frontlines of global human resource development. We would like to express our sincere gratitude to all those who supported and cooperated in the development of this publication.

Mr. Ueno of Okinawa Shogaku High School, who contributed on article as the culmination of his many years of educational activities, passed away from pancreatic cancer on June 25, may he rest in peace. We hope that his last article, as well as all the articles published in this issue, will be utilized by teachers around the world.

THE JOURNAL First Issue / Commentary on Contributed Articles

KOMATSU Toshiaki

Editor, Professor, Tokyo University of Marine Science and Technology

The Journal - Excelsior - was born as a journal specializing in educational practices related to understanding international education at secondary schools around the world. The Journal was born from the CHUO International Education Forum (host school: Morioka Chuo Senior High School), which has been conducted for more than 20 years. The first issue of the Journal gathered manuscripts from 13 teachers from six countries (England, Argentina, Indonesia, China, South Korea, and Japan). All of the manuscripts were written by teachers in the field, and are very worthwhile reading. Six manuscripts are from Japan (four from Iwate Prefecture, one from Okayama Prefecture, and one from Okinawa Prefecture) and seven from overseas (five from Asia, one from South America, and one from Europe).

Some manuscripts are related to comprehensive educational practices of the institution, some are highly specialized such as biological research and regional studies, and others are about biodiversity in nature and its connection to local and international communities through various international exchanges and fieldwork club activities. Other manuscripts are practical in nature, introducing various on-site innovations to motivate students and revitalize the classroom. What these manuscripts have in common is the passionate and sincere attitude of the teachers who work together with their students in the field of education.

The purpose of the first issue of the Journal was to show what teachers around the world are thinking, what they are worried about, and what they see as their challenges, and this has been achieved with great success. The Journal then seeks the truth about how teachers around the world overcome their own challenges through daily trial and error, and what remains unachieved. In other words, because every teacher is a work in progress, we hope you will pay close attention to what the Journal has to offer.

When teachers read the Journal, share their awareness of the issues with other teachers around the world, and gain new insights, they will be able to provide feedback to each other and learn from each other. We hope that the Journal will give courage and hope to many teachers in the field.

Practice Liberal Arts Education

–Achieve People’s Holistic Development–

Wu Jian

(Princial, High School Affiliated to Fudan University, Shanghai, People's Republic of China)

Summary

High School Affiliated to Fudan University (FDFZ) will achieve the development of students while practicing liberal arts education and leave its own unique exploration in the development of contemporary Chinese high school education.

Key words

Liberal Arts Education, Student-Centered Placement System, Academic Tutor System, College System, University micro-courses, Young Scholars Program, Elite Student Development Program, Teachers' Career Development, Cultivate Innovative Talents

High School Affiliated to Fudan University (FDFZ) was founded in 1950 and has a long history of 72 years. FDFZ is one of Shanghai’s first experimental model high schools, and one of the first model schools featuring science and technology education in Shanghai during the new “Five-Year Plan”. The campus covers an area of about 76 acres, with three domestic high school grades and one international department of grades 1-12 of more than 1,700 students and over 300 staff members.

In FDFZ, you can see a phenomenon that students are less pushed to schoolwork but more self-driven. As one student said, "When you walk into the classroom after lunch, you may be greeted by a beautiful, complicated and regular graph made with a geometry drawing board, a theorem named after a student on the blackboard, or a few logical reasoning questions like “how to move a matchstick”. When you look back, you hear a heated discussion going on behind you - about the relationship between the maximum number of musical beats and the richness of music. Of course, our world is not just science; we equally appreciate the poetry corner that a certain student insists on updating every day, and we debate after language class over a question that may never have the right answer."

In recent years, Wu Yi Shu has been the most influential figure among FDFZ students. As a FDFZ graduate of Class of 2019, she won the second Chinese Poetry Contest in 2017 in front of a cumulative audience of 1.1 billion people, drawing



High School Affiliated to Fudan University (FDFZ)

the attention of people in Shanghai and across the country. Wu Yi Shu grew up with a keen interest in ancient poetry and literature, and it is supported by her daily extracurricular reading. FDFZ has provided a broad platform for her interest to grow, and her language teachers often provide her with special guidance, explaining the ideas of Chinese philosophy and the appreciation of classical poetry. At the same time, the university provides her with various literature lectures and elective courses based on university resources, and there are also literary clubs and debate teams on campus for her to express her inspiration and communicate with like-minded people. As a result, students with specialties like Wu Yi Shu are able to take advantage of the environment at FDFZ and maximize their potential.

The philosophy of liberal arts education and the “self-driven, open and inclusive” learning environment allow students to expand their horizons, gain insights, and engage in self-directed learning. FDFZ focuses not only on the growth of students during their three years in high school, but also on the future trajectory of their lives, helping them to discover themselves, thus enriching their lives and reflecting their values. As Principal Wu Jian explains FDFZ's educational philosophy, “We cultivate people to produce a good continuity effect, to build a cultural foundation that affects learners throughout their lives.”

Optimize Curriculum Design based on student development

Liberal Arts Education is like a bridge: one end connecting the country's social development, talent supply and intellectual support; the other is connected to the fate of each child and the hope of each family. Under the concept of liberal arts education, FDFZ takes students as the center, establishes a scientifically rigorous and innovative curriculum system, and benefits the high-

quality disciplinary resources of Fudan University, relying on the academician pulpit, expert lectures, university micro-courses, scientific research practice and other rich forms to create more learning opportunities for students. In the process, FDFZ highlights the role of the high school stage as a transitional interface between basic education and higher education, so as to cultivate students' comprehensive ability to learn independently and adapt to the future society.

Especially in recent years, FDFZ has carried out a developmental pursuit of curriculum construction, continuously enriched and improved the original curriculum system, explored the college system training mode through the implementation of placement system and mobile classroom, combined with the tutor system to provide counseling and support for students in different colleges, so that students' comprehensive ability has been comprehensively cultivated.

Stimulate inner driving force: Perfect combination of “Eight Sections” and “Four Steps”

In the construction of the curriculum system, FDFZ strives to reflect its own school-running characteristics and student development needs, emphasizing richness, diversity and high selectivity, which is divided into eight major sections according to the main content and training direction of the curriculum. “Chinese People” is one of the educational elective courses in the humanities and classics section, which takes the development of the times as its main line, as well as takes the spiritual development of “Chinese” as its link. It selects the classical theory and literary image, presents the ideal people of Confucianism, Mohism, Taoism, and Buddhism, the “awakened” people who converge on Confucianism and Taoism in Wei Dynasty and Jin Dynasty, those who seek the true self in Ming Dynasty, those who seek the truth in modern times, those who seek “liberation” in contemporary times and those who are now “proceeding to the world”. It includes various legends, mythological figures and chivalrous heroes, and strives to present the spiritual development of Chinese People and guides students to consciously participate in the process of globalization as a “Chinese”.

By studying this course, students can jump out of the traditional subject curriculum structure and have a profound thinking on the question of “how to understand the idea of 'Chinese’”, which not only has an intense driving force for “Chinese” and “Chinese culture”, but also strengthens their ability in cultural selection and pursuit of the value of life.

Innovative teaching methods: Placement, Tutor & College System complement each other

While the curriculum reform is gradually deepening, FDFZ has also carried out in-depth exploration of teaching models. FDFZ adopts a student-centered placement system, breaking the concept of traditional administrative classes, blending arts and sciences, avoiding the unity and homogeneity of cultivation, and achieving the curriculum's student-development-oriented design goals of, focusing on multiple choices, developing personality and shaping character.

One often sees scenes where students are shuttling between classrooms in different classes. After each lesson, students are busy changing classrooms and new learning partners. The course selection system that cooperates with the mobile classroom gives students a lot of autonomy, so that they really have the exclusive course of “one person, one class schedule” and truly become the master of their own learning. This model is conducive to students' self-development and growth, but sometimes it also causes students to fall into the "confusion" of lack of belonging. In view of the above characteristics, FDFZ has established an academic tutor system to further strengthen the personalized career planning and further education guidance for students, and enhance the effective communication between teachers and students.

Under the background of the gradual maturity of the “placement system” and the “tutor system”, FDFZ explored the “college system” training method for all students on the basis of the practice of the College of Arts and Sciences, and therefore established four colleges: Wang Dao, Bu Qing, Jia Zhen and Xi De. The four colleges are named after the former presidents of Fudan University, and also inherit the legacy of the old presidents, each with disciplinary characteristics. Each high school student belongs to one of those four colleges at the beginning of enrollment, and FDFZ opens special courses for improving mathematics, physics and chemistry and special courses on liberal arts literacy according to the characteristics of students, providing space for students with spare energy to develop more interests and hobbies. Under such an all-round and multi-level training method, the comprehensive quality of FDFZ students has been further cultivated.

As one student who graduated from Fudan Middle School said: “At first, I was completely helpless, it was the tutor who taught me the research method step by step, which made me move from a reader of “Douban”, “Zhihu” to massive CNKI papers; from having only hazy ideas to learning to finding theoretical

basis in the works of communication giants, from asking the naïve and shallow interview problems to achieving the successful completion of focus groups and case interviews, and finally I finished the research report, and participated in the competition... Although I only know a little about the research process now, I can definitely feel the improvement of my ability during the whole process, and I understand more clearly that although research is difficult, as long as I believe that what I do is meaningful, I will eventually have gains from persevering.”

Breaking down stereotypes: Joint achievements of Micro-courses & Young Scholars Program

FDFZ and Fudan University are geographically closely connected, and both have unique conditions for exploring the interaction between university and high school education. Fudan University opens classes to FDFZ students, students can participate in the evening university courses; FDFZ students have also entered the laboratory and library of Fudan University during the summer vacation, participating in small projects or book clubs, and experiencing the charm and fun of academic research. The close interaction between FDFZ and Fudan eventually led to the teaching cooperation of the university's micro-courses. Since 2018, FDFZ has opened a “university micro-course” with the support of Fudan University, and more than 30 well-known professors have entered FDFZ’s classrooms in just one year and opened more than 30 micro-courses. University micro-courses are characterized by its concentration, continuity and short teaching schedule, while single academic lectures are with longer duration and more concentrated themes. Micro-courses can display scholars' academic ideas more comprehensively and deeply. The flexible and in-depth teaching concept gives university teachers more freedom of choice, so that they can choose a number of topics to discuss with FDFZ students in the fields they specialize in, focusing on academic thinking process. These courses seamlessly connect the university classroom on the basis of the corresponding curriculum sections of the attached middle school, so that FDFZ students can understand the academic characteristics of the discipline and discover and develop their own interests and strengths. The attached middle school, known as the “most university-like high school”, has also further developed in the field of exploring “university-high school” articulation linkage.

Deng Fei, Ph.D. in the Department of Oriental Studies of Oxford University and researcher of Literature and History at Fudan University, has been engaged

in the study of archaeology and material culture of Song and Yuan art for many years. She taught her classmates the lesson “Archaeology of Chinese Art”, using archaeological findings and

tomb materials to explore the culture, religion, etiquette and politics of ancient China. Tao Yi Wei, a student of the class of 2023, is deeply moved after taking the elective course, "It turns out that the tomb can contain such a grand 'universe' in the small



world. Behind the mottled patterns is the fusion and unity of multiculturalism, and the culture contained in the tomb is the 'fire of the underground world', which guides generations of scholars to find the 'knowable world'. As a result, she likens the course to “a scientific journey that breaks down stereotypes.”

This course is just one of dozens of micro-lessons. In recent years. A number of university teachers have entered the high school classroom, and they have set up courses such as “Public Health: The Eternal War That Changed the Course of Mankind”, “The Briefest History of Mankind”, and “Introduction to Japanese Culture” to explain knowledge and answer questions for students. They have devoted themselves to turning knowledge into easy, teaching children in a simple and simple way, sowing the “seeds” of related disciplines for them, so that students can experience university general education and professional training in the classroom.

In 2021, FDFZ continued to deepen its cultivation in the field of integration between college and high school, launching the Young Scholars Program. The program is a research group composed of students from FDFZ, New York University (Shanghai), Shanghai University, Shanghai Pasteur Institute and teachers from the International Department of FDFZ, covering market economy, physics, cognitive neurology, sociology, economics and virology. Under the guidance of professors, teachers and seniors, students will conduct in-depth research on related topics within one year and achieve research results.

The Young Scholars Program continues the original mission of the university micro-course, which is to allow students to find their future research direction

through real research and practice, and to choose the university and major that truly suits them, at a time when educational resources and personality choices are complex and changing. In addition, the program goes beyond the traditional disciplinary dimension to nurture more students with a sense of human destiny by building a “nurturing community” that includes school, society, family and students’ peers. The program dedicates to making students more aware of the people around them through their research, and hopes that they will be able to move from a purely disciplinary perspective to a broader one, caring about the surrounding community, the country and even the world, and becoming a globally competent person.

Cultivating a Liberal Arts career and building an exceptional team

An excellent teaching staff is the backbone of FDFZ's educational and teaching activities. Designing career paths for teachers, providing platforms and opportunities for career development, and giving continuous process guidance during development are necessary for FDFZ to run a high-quality school. FDFZ integrates the advantages of Chinese and Western teacher career development models and creates paths and measures for teachers' career development from four perspectives: height, breadth, effectiveness, and humanity, to realize teachers' value and enhance their sense of professional belonging and happiness.

In terms of height, FDFZ guides teachers to clarify the milestones and long-term goals of their professional development and pushes them to step out of their personal comfort zones to continuously discover and understand themselves. In terms of breadth, FDFZ provides teachers with a variety of training platforms for professional development and encourages teachers to pursue professional development in university classrooms. It is recommended that teachers under the age of 40 must spend half a year out of two years attending a course related to their major at Fudan University or their professional counterparts to sharpen and improve their professionalism.

In terms of effectiveness, FDFZ focuses on the leading role of outstanding teachers, which in turn creates an effective culture of internal motivation. Young teachers have learned from many outstanding predecessors and have developed a more comprehensive and stronger professional ideal. In terms of humanity, FDFZ spares no effort to support labor unions, faculty councils and other organizations, opens faculty sports clubs, creates salons for young teachers, and strives to create richer and more diverse group building platforms and exchange

and interactive activities to enhance teachers' happiness and sense of belonging. In specific teaching, FDFZ encourages teachers to “look beyond teaching”, to observe their own teaching design more from the students' perspective, to discover its rationality and effectiveness. Teachers are requested to contemplate on: “whether I provide opportunities for most students to participate in learning activities”, and “whether I propose a curriculum that matches the students' cognitive level”, “whether I provide opportunities for most students to participate in learning activities”, “whether I ask open-ended questions that match students' cognitive levels”, “whether I leave enough time for students to think”, “whether I listen to students' expressions, not to interrupt them, and to give feedback to students' answers in a differentiated manner”, and so on.

These teaching details largely guide teachers to understand the criteria of “good” lessons, so that they can truly implement “student-centered” teaching method into every aspect of teaching, rather than just staying at the level of ideas and slogans. As young teachers say, “A good classroom is not only about teaching, but also about learning. Only by thinking from the perspective of 'learning' can we teach better.”

Sowing the “SEEDS” of liberal arts for a better future

In recent years, FDFZ has been taking multiple measures to cultivate innovative talents. The continuous optimization of the curriculum structure, the deepening of the educational reform, the continuous improvement of teachers' quality, and the accumulation of practical experience have provided a good foundation for the cultivation of innovative talents, inspiring and guiding generations of students to become the bright stars of tomorrow.



Shi Fang Yan, who won the gold medal in the National Mathematical Olympiad, lamented, “The sea is wide enough for fish to swim, and the sky is high enough for birds to fly, and it was FDFZ that gave me the freedom to roam the world, and that’s why I made my achievements.”

Since 2018, FDFZ has launched the “Du Zhi Cup” innovation experiment competition to build a platform for students to free their minds, practice and discover creativity. Lang Qing Lin, who successfully entered Bei Jing University, participated in the Science and Innovation Competition and FRC (FIRST Robotics Competition), and believes that the beauty of these experiences is that “you can learn something beyond the test in practice.” A number of outstanding students have drawn energy and wisdom from the fertile soil of FDFZ, and have been able to develop their thinking skills.

In 2021, the number of winners of competitions in various disciplines reached a new high. In 2021, a total of 45 students won the third prize or higher in the Shanghai Youth Science and Technology Innovation Competition, and 7 students won the second prize or higher in the National Olympiad in Information Science. In 2021, there were a total of 45 winners of the Shanghai Youth Science and Technology Innovation Competition and 7 winners of the Shanghai Science and Technology Stars of Tomorrow.

In 2021, the university entrance exams of students from FDFZ were carried out smoothly and orderly, and they have achieved good results in the admission of high-level universities: the admission rate of top universities in Tsinghua University, Beijing University, Fudan University, Jiao Tong University and Hong Kong University is about 45%, the admission rate of “double-first-tier” universities is over 60%, and more than 80% of students have been admitted to universities of “211 Project”. In terms of international advancement, 20% of the 2021 graduates of FDFZ’s International Department alone entered the top 10 QS schools, and 69% entered the top 30 QS schools.

Over the past 70 years, the FDFZ campus has nurtured more than 30,000 graduates who, under the cultivation of its liberal arts education philosophy, have become outstanding and innovative talents active in different fields and industries. As FDFZ alumni say, “Students of FDFZ are not dullards who bury their heads in their books, but are concerned about society and the development and changes in China and the world.” “FDFZ provides a solid foundation for everyone to expand their horizons, and by knowing themselves well and bringing their imagination, they can succeed in any field.” “Because of FDFZ’s development, diversity, vitality and positive energy, the minds and bodies of a group of unruly teenagers are fully nurtured and incubated.” “The teachers of FDFZ make it their greatest pursuit and happiness to teach and solve problems, and students naturally respect them from the bottom of their hearts. The FDFZ

teachers, whether they are leaders or lecturers, are all dedicated to their work and teach themselves. The goodness of FDFZ lies in its environment of loving and nurturing talents, and in its pure and upright school spirit.”

As the “Golden Name Card of Shanghai Basic Education”, FDFZ, led by the philosophy of liberal arts education, not only focuses on how education can make students successful today, but also continues to focus on their future development. From the love of family and country to the vision of the world, from the courage to take responsibility to the spirit of pursuing excellence, from the rigor of striving to the openness and tolerance of liberal arts, these spiritual cultures have cultivated a batch of outstanding students who are motivated and pursue excellence, making them grow into “masters of learning, masters of FDFZ, masters of the country and masters of the times.” In the future, FDFZ will combine the characteristics of the “Internet+” era, optimize the teaching mode and continue to set foot on solid ground, shoulder the responsibility and morality, achieve the development of students while practicing liberal arts education, and leave its own unique exploration in the development of contemporary Chinese high school education.

To realize biodiversity and understand the significance of SDGs goals

—Science Club Activities as Extracurricular Activities—

TAMAYAMA Mitsunori

(Science Club Advisor, Biology Teacher, Morioka Chuo High School, Morioka City, Iwate, Japan)

Summary

This article outlines the modest activities of the science club as extracurricular activities, which have been carried out with the students, who will lead the next generation, to realize biodiversity, while keeping in mind the 17 goals of the SDGs, in order to create a better world that is tolerant of others.

Key words

Biodiversity, SDGs, goals, living the paradox, tolerance for non-self Deformable Fungi as a Tool for Global Perspective

1. Introduction

The textbooks for “Basic Biology,” which are required in high school courses, begin with the theme of “Diversity and Commonality of Living Things,” but the latest textbooks only mention that there are more than 1.9 million named organisms on the earth, and the main emphasis is on “commonality.” Students can answer this part of the common test correctly if they remember this number “1.9 million species,” but this number is increasing every day, and in fact, textbooks up to last school year stated “1.8 million species.”

The latter half of the 20th century and the 21st century have been called the “age of biology,” and new facts continue to be discovered one after another through active research. In the midst of this, there are fewer and fewer opportunities for students to experience “biodiversity” in schools and society. When asked to name organisms they are familiar with, students' answers are surprisingly lacking in diversity. It is unreasonable to expect those who have never had the experience of catching insects when they were young to realize that the vibrations of the wings of a pinwheel held between their fingers are so powerful that they can slip through their fingers and fly away. The term

“biodiversity” is just one of those things that people bring up when they want to say, “I know that word.” Even if we illustrate the “complexity and elaborateness” of plant structures to people who have never picked wild flowers to make flower crowns or plucked weeds in gardens and fields by hand, we cannot convey the toughness and fragility of the plant body.

The life phenomena that young people who are going through this kind of growth process learn mainly in high school classes are life phenomena at the cellular and molecular level, within the subject of the “commonality” of organisms. The low vaccination rate against coronaviruses is a worldwide problem because the receptor protein on the cell membrane sends antigenic information into the cell, and dendritic cells, helper T cells, and B cells, which are responsible for the immune system, produce Y-shaped antibody proteins, immunoglobulins (Ig), in the human body against the antigens of the virus and other viruses.

2. the paradox of intracellular symbiosis

The theory of “intracellular symbiosis” is the basis for the “commonality” of organisms taught in high school classes. This is one of the modern “established theories” that have been gradually accepted by the scientific community through the development of molecular evolutionary studies, and it is a landmark that this theory is used in high school textbooks. This is because, in the unit on immune mechanisms, such as vaccines, cells have a molecular mechanism that distinguishes between “self” and “non-self” and eliminates “non-self.” In this intracellular symbiosis theory, mitochondria and chloroplasts, which are important organelles in eukaryotic cells that everyone knows about, were incorporated into another eukaryotic cell 1.9 billion years ago and lived together without being eliminated or digested, even though they were non-self (symbiosis = “cohabitation”). This is because it is explained that the birth of the present eukaryotic cell is the result of the cohabitation of non-self with another eukaryotic cell (cohabitation). This extremely rare phenomenon is the origin of the present species. In other words, of the more than 1.9 million species that exist today, the animals, plants, mushrooms, and fungi that we commonly think of when we speak of living organisms are, in the first place, contradictory and live in a paradox.

Erwin Schrödinger, one of the key researchers who pioneered quantum physics in the 20th century, believed that “being an entity that decreases entropy in defiance of the second law of thermodynamics” is being alive, and his insight led to the subsequent discovery of the molecular structure of DNA and the birth of molecular biology. However, as a living species, humans (*Homo sapiens* Linnaeus) cannot escape from this law of life. However, if the approximately 7.5 billion humanity living on the earth today possess the “sapio” that Carl Von Linné adopted when he coined the scientific name, or what René Descartes called “*bon sans*,” and are aware that they are “thinking reeds,” as Blaise Pascal called them, then they are able to eliminate the “non-self.” If I am aware that I am a “thinking reed” as Blaise Pascal says, then I need to restrain myself from tending to exclude the “non-self”. I believe that the recognition of the existence of “non-selves,” even from the perspective of historical differences between peoples and differences in religious values, is the key to living as humanity beyond the biological species of humans, and this is what I want the generation in the process of forming values to learn in the field of “education.”

In textbooks, we learn that living a “paradoxical” life requires energy, a substance called ATP (adenosine triphosphate), but living as a social being as a human being also requires energy, which is reason and intelligence, and I think this is what we learn from education. It is one of the narrow stereotypes of ignorant insight that there are only two sexes in terms of biology. Understanding the “diversity” of organisms is synonymous with being tolerant of non-selves and understanding and respecting the “diversity” of peoples and languages; all 17 goals of the SDGs converge here. Everyone has the equal right to live happily (*El Derecho de Vivir en Paz*) for less than 100 years, even though it is not a life that anyone would have wished for himself.

3. Existence precedes essence.

Aristotle of ancient Greece examined the animals of the Mediterranean and divided them into “blooded and unblooded animals,” but could we say that he lacked a better understanding of the phenomenon of life than we do today because he was unaware of the fact that living beings are made up of cells? I believe that Aristotle became the “founder of biology” beyond the speculative nature of his teacher Plato, whom he studied at the Academia, because he directly touched, dissected, and smelled “living things” himself.

The discourse “l'existence précède l'essence” may be an outdated philosophical term now, but it has been used by generations of people in Ukraine, Russia, Finland, Latvia, and elsewhere who have lived with their feet on the ground and their family ties as their only connection. I believe that this has prompted a reconsideration not only among Europeans, but also among many people today who live in an era in which the entire planet is in their sights. Young people first of all need opportunities to scientifically “observe” life phenomena operating in front of them in their daily lives, and elementary education is required to ensure as many of these opportunities as possible. If a person does not have any actual experience, there is no way that he or she will be able to understand the molecular mechanisms of life phenomena when they are explained to them. If one wants to know more about molecular mechanisms, nowadays, with the development of the Internet and other means, it is possible to learn enough even after going to advanced school or entering the workforce, as long as one's scientific curiosity is nurtured.

4. Science club activities as extracurricular activities

First of all, if you see a flower, I want you to touch its petals and leaves with your fingers and skin to feel its softness. Animals are not just something you see at the zoo, nor are they just pets that live like family members. The goji-geji (Pardon!) that wandered into a third-floor classroom during class and was trampled by a teacher (the author) is a biologically equivalent creature out of 1.9 million species. During the 10 years or so that I have been in charge of the science club as an extracurricular activity, I have wanted to provide the students, who take time out of their busy schedules to participate in the club, with an opportunity to come into contact with real living creatures, even if only a little, and I have been introducing them to “Myxomycetes, true slime molds,” which I have personally studied since my student days. I have been introducing my personal research on “Myxomycetes, true slime molds” to my students. This is the first time any of the students have seen the organisms, and while some students stop there, others continue with interest.

There are two themes of the club's activities: taxonomic and biogeographical research that provides basic data on biodiversity, and experimental research using a condition called plasmodium, which can be done in the school science lab.

Of the 1,000 or so species recognized worldwide, about 200 have been reported in Iwate Prefecture. We conduct field surveys and culture them in science laboratories (moist chamber culture) to produce specimens as evidence, compile occurrence lists, and determine the similarity of each collection site. This is an extremely simple activity, but it is also a process that gives students a tangible sense of biodiversity. Since the identification process of determining species names is difficult for students (even at the researcher level, species are known to be a difficult group to define), the final identification work is done by the author, but some students are enthusiastic about observation using stereo microscopes, and several species have been found that have never been recorded in this prefecture.

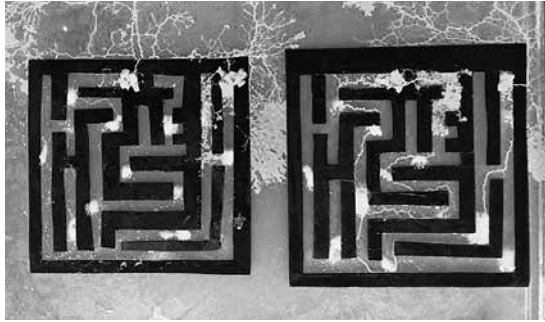
Last year, nearly 500 specimens accumulated by successive generations of students were donated to the Iwate Prefectural Museum, which recognized them as primary biodiversity resources in the prefecture. In doing so, the students of that time worked diligently to label the accumulated specimens and organize the database in Excel. They were able to experience how survey data from their own local area could be reflected in a database for the whole of Japan and become part of a global-scale inventory.



In guiding the activities of the science club, we do not try to make the activities “high school-like,” but aim to gain new scientific insights for professional researchers as well. Although there is a limit to what we can do, they appreciate our activities and have made it possible for us to do scanning electron microscopy in the electron microscope room at the Faculty of Science and Engineering of Iwate University.

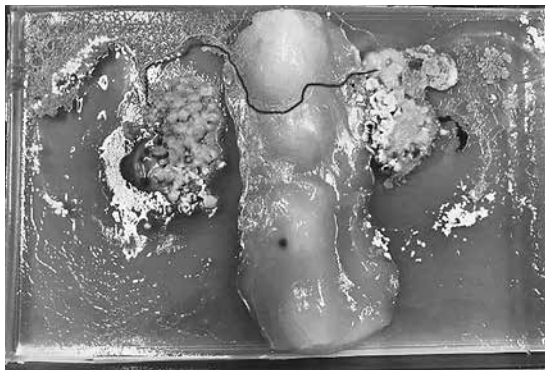


The experimental research using plasmodium, which can be done in the science lab, begins with the rearing of amoeboid plasmodium,



which is a “difficult” task for the new students. In order to study life phenomena, one has to raise the organisms, and this involves repeated trial and error while paying attention to temperature, humidity, and other factors on an agar medium. That is all

right. One of the things I want you to experience is to realize that what is written in a single line in a textbook or on Wikipedia is the truth that has been acquired by mankind through a great deal of labor and effort. As has been passed down from generation to generation, the students take the initiative in washing the



experimental containers themselves, even though they say they smell bad after the culture is finished, even though they may get moldy. When I first witnessed this, I was impressed that today's young people are not so bad.

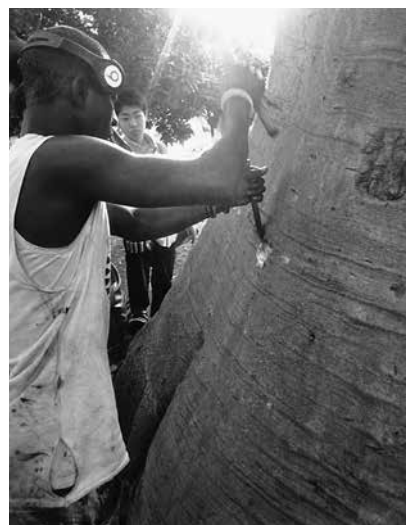
Although there are times when the students make continuous failures, some of them find a trick and master the art of culturing. One student was able to reproduce the maze experiment on his own, thanks to the advice of Professor Toshiyuki Nakagaki, a two-time Ig nobel prize winner, who was featured on the cover of the scientific journal “Nature” and became a topic of conversation as to whether unicellular organisms have intelligence. Although I have no intention of nurturing future researchers in the field of biology, I believe that this was a great opportunity for him.

A student who graduated this spring decided to make a three-dimensional experiment out of a two-dimensional maze experiment, and made a three-dimensional model using agar medium, as shown in the photo below, but instead of purchasing ready-made equipment and instruments, he used his own ingenuity to obtain the results shown in the photo. A similar study had already been reported by Prof. Adamatzky in England with more sophisticated experiments, but as an advisor who has been observing this student's activities for the past two years, I can vouch for his hard work and high degree of

independence.

5. Conclusion

One of the features of our school is that we have sister schools all over the world. When former students who participated in the sister school program stayed in Dakar, Senegal, they brought back bark and fallen leaves and branches as samples for wet room culture, and the results of the culture in our science lab are being compiled.



The lack of data on habitat survey information in African countries for deformable fungi is also one of the issues that researchers around the world need to address, but researchers in Finland and a museum in Belgium, due to its historical background, have been conducting surveys in several countries. Although researchers are growing up in Kenya and other countries, there has been no report from Senegal at all, and they are encouraging us to publish it as it will be the first report from Senegal in the world, and therefore of scientific value. The former students of the school, who have since graduated and are now moving on with their lives, are happy and proud of this. I am sure that the students who were sent to Senegal did not forget my request to communicate with the local people to collect samples, as shown in the photo, and it is no wonder that they have excelled in their subsequent university studies, and I am sure that their experience was motivation for their development as teachers. It was a great honor for the teachers to think that this would have been one of the stimulating factors in their development. They clearly enjoyed this activity. This is important.

(It is the author's undiscovered dream) to collect samples with the same purpose not only in Senegal but also in our sister schools around the world, cultivate them in their respective high schools and in our school, and create a map of the global distribution of the organism called deformable fungi. In order to do so, it is necessary for each teacher to learn about this organism, which even biology teachers probably know only in words, but I am available to advise on any matter upon request (mitsunori.tamayama@nifty.com). I don't know how much sense there is in these extracurricular activities. It is all a process of

exploration, but I am sure that I have made it this far because of my tenure at the school, and I am grateful for the understanding and support of the school.

References

The following is a “Seeing is believing” website on what deformable bacteria are like.

<https://www.discoverlife.org/mp/20q?search=Eumycetozoa&guide=Myxomycetes&flags=H>

AS:

Multicultural Society and Education for International Understanding

Oh Sae Ho

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Summary

Korea's multicultural policy is being developed in the direction of creating a society where people can live together by understanding and embracing each other's culture and history with the goal of harmony and coexistence. In line with this, Ansan Gangseo High School is promoting international culture understanding education in which students effectively participate based on the research result that multicultural acceptance index is not that high without direct interactions. We have sisterhood agreements with Australia, Japan, and Taiwan, sending students to sister schools, teaching students with video classes, operating mutual cultural education programs, and doing online interactive activities. Our school has an exchange student program in cooperation with various institutions to provide language education and 'mutual cultural exchange'. In the future, we will continue to promote education toward 'intercultural education' to foster 'world citizens'.

Key words

Multicultural Society, Interaction, Cultural Exchange, Reciprocal Visiting, Video Classes, Online Exchange, Language Education, Educational Opportunities, Identity, Integration, Intercultural Education, Global Citizenship

1. Introduction

The lifestyle of eating, sleeping, and wearing combined with the environment, history, and social situation becomes a culture. So, a culture appears in a wide variety of forms depending on the region and society. No matter what culture you have, there is a reason why all cultures have occurred and continue. In addition, a culture can be the most important criterion for understanding society or country because it is an important factor in determining the value and morality of local people's lives. Therefore, understanding and tolerance for a variety of cultures become an important competency to live in the

global era.

Now, in most countries, people from various countries are living together and creating a new culture. As in the past, the culture of the present and future will be created by the lifestyle that each member of society creates now. Countries around the world are creating a new culture that will live in the future by combining their own culture and the culture of new members in harmony.

In Korea, people from all over the world who have immigrated to attain an objective to make for a living and study are making a new society. The Korean government and civic organizations are making great efforts to help them. However, until now, Korea's multicultural family support policy has been made in the direction of foreigners adapting well to Korean society and accepting Korean culture. The purpose of the Framework Act on the Treatment of Foreigners in Korea, which took effect in 2007, and the Multicultural Family Act, which took effect in 2008, was for foreigners in Korean society to adapt to Korean society and integrate with Koreans. Korea's multicultural society, which primarily revolved around Southeast Asia women's international marriages and Korean Chinese workers, is still rigid, emphasizing ethnocentrism, and focusing on foreign immigrants' fairy tales and cultural assimilation rather than changes in Korean society. The Korean government provides child care benefit to children of multicultural families, language development diagnosis and education, and educational visits to multicultural families. However, as the number of multicultural children increases rapidly, they are suffering from the lack of multicultural awareness and confusion in self-identity.

Presenting the humanitarian ideal as the founding ideology of the nation, Korea is a society with an ideological foundation for embracing diverse cultures, but the reality still has many problems to solve. Fortunately, in recent years, efforts have been expanding to create a society where harmony and coexistence are the policy goals, understanding, embracing each other's culture and history, and living together. In the new global era of the 21st century, in order to form a society where members of various cultural backgrounds live together, the need to support different cultures to grow into appropriate cultures where they live in the future society has increased. In this trend, Ansan Gangseo high school is also making efforts to examine the current situation of multicultural families and regional policies and conduct future-oriented international cultural understanding activities to help form new local and social cultures.

2. Main Idea

Ansan Gangseo High School is a private high school located in Ansan, Gyeonggi-do, South Korea. Ansan is a coastal city located in the southwest of Seoul within a 30-kilometer radius. In the 1970s, an industrial complex was established nearby, and the population was greatly introduced mainly by workers, and as of 2022, about 700,000 people are living in this city. About 10,000 companies are engaged in economic activities in Ansan and nearby areas. Recently, the number of foreign workers is increasing rapidly, especially thanks to active economic activities.

Students in Ansan have less resistance to foreigners and foreign cultures and have a high understanding of each other's cultures. Of course, it is difficult to say that various foreign cultures coexist inside Ansan because foreigners are absorbed by Korean culture and have no choice but to live a Korean-style life. According to a report by the Gyeonggi Institute of Education, even multicultural areas do not necessarily have a higher multicultural acceptance index than those that do not. It announced the results that even if many migrants reside, multicultural acceptance is not high without direct interaction.

Fortunately, in recent years, there has been a view that unilateral absorption or assimilation is undesirable, and each culture is changing in the direction of recognizing and living as it is. In line with this, Ansan Gangseo High School actively develops international exchange programs and provides opportunities for students to participate. Currently, activities for international exchange programs have been dampened and suspended due to COVID-19, but every member in Ansan Gangseo High School tries to explore opportunities to make a leap forward again.

Since the first student exchange program was started in 2010, our school has formed a sisterhood relationship with schools in Japan, China, and Taiwan, and has been conducting student exchanges and cultural experience activities and is also seeking related exercises during class. Through club activities, student exchange programs and international cultural understanding activities are being promoted whenever there is an opportunity. We are not only trying to experience different cultures from ours out of curiosity, but also trying to understand each other's cultures and proceed in the direction of multicultural understanding education that lives together in the region. Through this article, I would like to look back on the international exchange program operated by Ansan Gangseo High School and think about the direction to develop it into a program to

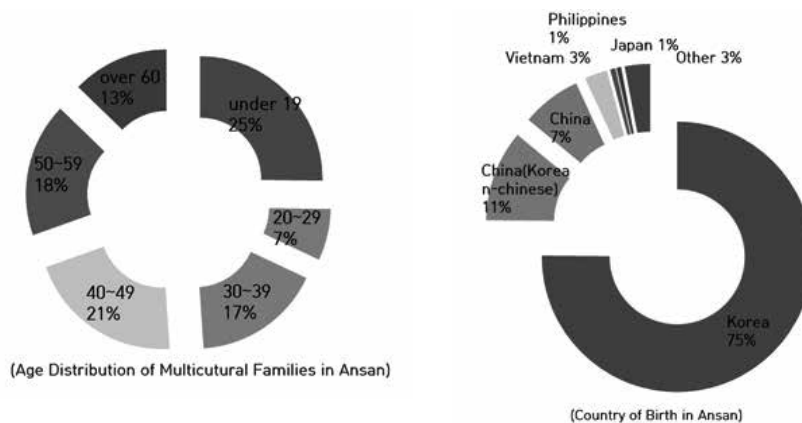
establish a better relationship.

1) The Perception of Multicultural Society in Korean Society

Multiculturalism means a mixture of cultures of different ethnic groups and countries in a society. Multiculturalism is an ideology that encourages cultural diversity and aims for coexistence and integration based on understanding of different cultures. Multiculturalism is based on the universal right to embrace, recognize, and preserve all cultural communities for their members. It is necessary to try not to impose one's methods on others by using power. Social integration by embracing other cultures is to establish each person's identity in spite of differences from other people or cultures. In modern society, 'unification' is no longer an element of sustainable culture. In the global civil society, the universal value of mankind is directed rather than the legitimacy of a homogeneous nation and pure blood custom. Therefore, the task of the multicultural era is not unification but integration. Integration for a multicultural society includes a multidimensional process that involves various factors such as legal status, political and social participation, and language ability based on various cultural understandings.

2) Status of Multicultural Families and Multicultural Students in Ansan

The representative members newly introduced into Korean society are about 1 million foreigners, including international marriage immigrants, foreign migrant workers, and international students. In particular, Ansan belongs to a local government with a high proportion of foreigners in the country, with 82,686 foreigners living in Ansan (as of September 2021) from 80 countries, the second largest number of foreigners in Korea. The types of foreigners living in Ansan are as follows.



- The average age of multicultural household members is 37.3 years old, with 25% being under 19, followed by those in their 40s (21%) and those in their 50s (18%).

Leading the establishment of the National Multicultural City Council in 2012 to build a local government cooperation system, Ansan operates the nation's first and highest administrative agency dedicated to foreign residents to provide one-stop services. In addition, Ansan is the only city in the country which was designated as a special multicultural village zone by the government in 2009, providing specialized services, systematic management of dense residences, and revitalizing local tourism using exotic multicultural streets.

- The nationality of multicultural household members is Korea (75%), followed by China (Korean) (11%), China (77%), and Vietnam (3%).

Source : Gyeonggisatoday (<http://www.yitoday.com>)

Education level	Total		
	Total Students	Number of Students from Multicultural Families	Multicultural Students Rate per Total Students (%)
Primary School	32,594	3,762	11.5
Middle School	17,937	1,195	6.7
High School	19,288	582	3.0
Total	69,819	5,539	7.93

Source : Basic Plan for Multicultural Education - Gyeonggido Office of Education

There are about 5,500 multicultural students living in Ansan, accounting for 7.93% of the total students. The proportion of multicultural students is expanding to 10%, and multicultural education policies reflecting this are also appearing in various ways. Ansan helps the settlement of multicultural families through the Ansan Multicultural Center and the Ansan Global Youth Center entrusted with language education supports students' learning operating programs, psychological and emotional support, and career counseling. Moreover, programs to support multicultural students in each school are sponsored by the Office of Education.

3) International Understanding Education Activities of Our School

There are 21 multicultural students in our school, about 2.5% of the total students, which is less than the average in Ansan. But given the local situation, our school is trying to run various international programs to cultivate the cultural awareness attitude necessary in the global era.

Country of Birth					
Japan	China	Mongolia	Vietnam	Middle Asia	Middle-East
2	11	2	2	2	2

According to a report by the Gyeonggi Institute of Education, "The cultural acceptance index depends on the presence or absence of a direct human interaction rather than whether it is a multiculturally concentrated area or not." It is said that students with multicultural friends show a higher multicultural acceptance index than students without multicultural friends. Based on this, schools need to operate more programs with multicultural education than they do now, and they feel the need to implement mutual cultural education on an equal level through continuous interaction. In order to realize this, we are trying to operate various international exchange programs as well as programs for multicultural students living in the local area. In the direction of international exchange, efforts have been made to promote future-oriented and relationship-oriented exchanges based on direct exchanges between students, rather than just experiencing food and clothing. Our school is conducting an exchange activities with sisterhood schools in Australia, Japan, and Taiwan under our own program. After signing a sisterhood relationship with Hamilton Secondary College in Adelaide, South Australia in 2007, students are sent every year to maintain language training through participation in school programs and cultural exchange activities through homestay. Also, video classes and mutual cultural education using the Internet were conducted, and the educational activities were introduced in Korea Broadcasting System news. Our school is promoting a program to understand and exchange Chinese culture in consideration of the majority of Chinese people living in the region. In 2017, we signed a sisterhood relationship with Zhuwei high school in New Taipei City, Taiwan, and operates programs such as video exchange, letter exchange, SNS exchange, and mutual visiting cultural experience (homestay) and language training.



Zhuwei High School (新北市立竹圍高級中學) Exchange Visit

We are also actively participating in exchanges with Japan. In 2010, after a sisterhood agreement was signed with Teikyo Junior-senior High School in Tokyo, exchanges such as correspondence and SNS exchange, mutual visit cultural experience (homestay) and language training have been made and students had a chance to study abroad for one year until 2019. In 2015, making a sisterhood agreement with Tokushima Bunri university in Tokyo, some students have an opportunity to enter the university through correspondence and SNS exchanges, mutual visiting cultural experience (homestay), language training, and recommended admission by the principal. Since 2016, we have participated in the Morioka Chuo High School International Exchange Program.



Cultural Exchange Experience with Sister School in Japan

Other than the school's own programs, we are actively promoting activities in which foreign students participate in our school's educational programs in cooperation with AFS, YFU, and Rotary Club.



Exchange Student (2017-18) Japan



Exchange Student (2018-19) Germany



Exchange Student (2019-20) France



Exchange Student (2019-20) Germany

Our students eagerly engage in the experimental learning programs to teach both language and culture of Korea to international students. Our school is also actively running international understanding education activities in connection with the Ansan Multicultural Center.

Since 2009, multicultural understanding programs have been implemented for our students and instructors from Ansan Multicultural Center provide opportunities for students to receive experience-oriented cultural education in classes and club activities. Based on these various activities, students in our school are less reluctant to each culture, and they have become interested in recognizing the culture of others and forming a new culture in which each culture coexists. Many students in our school increasingly have a willingness to take part in international exchange programs operated by school and communities and the number of cases in which some of the students who experienced the programs aim to go abroad to pursue their dreams continues to rise.

3. Conclusion

The most urgent problem in multicultural education is the Korean language

education of multicultural students and having pride in their own culture. The key is not to separate students from multicultural families so that students can enjoy equal educational opportunities without being discriminated against according to race, language, or cultural background. However, in reality, multicultural students are often discriminated against due to language acquisition problems and have difficulties in adjusting to society due to poor basic academic skills. Schools, communities, and national programs to reduce this need to work systematically. Because language and culture are inherently closely related, teaching a language means teaching culture. The European Union's multilingual policy can be referred to as a model to overcome this problem. It is also necessary to further expand the interpreter assignment policy for each school level currently supported by the Office of Education. Besides, it is necessary to encourage learning of the native languages and Korean, and to activate a bilingual education program that allows students from multicultural families to adapt to Korean society while maintaining their own cultures and languages. In addition, rather than forcing them to become Korean unconditionally, mutual cultural experience programs should be provided so that they can recognize each other's cultural strengths and adapt to Korean culture. The direction of international exchange and cultural exchange should not be one-sided absorption or subordination, but rather the recognition of mutual culture and the creation of the environment to live in a harmony. We should aim for intercultural education to understand the similarities and differences of each culture, to look at the differences positively, and to create a new culture with the goal of 'establishing appropriate relationships' through international exchanges in the future by reflecting on the activities so far. Together, we have to find a sustainable way to live in the future global society. Germany emphasizes that social cohesion should be a task for society as a whole. Although integration is an important goal of schooling, it is clear that integration must be achieved while maintaining the personal and cultural identity of students from immigrant backgrounds.

Korea is now aiming for an international society where people can live together in a community without discrimination in terms of race and ethnicity by identifying issues that affect interactions and links between communities based on their knowledge of regional, national, and global systems and structures. . The Gyeonggi Provincial Office of Education is also making efforts to organize and support the 'Global Citizenship Education' curriculum, so it is expected

that the international exchange program will be more actively operated in our school to foster 'global citizens'. Our school will also actively participate in the education office and local multicultural center programs, and make efforts to absorb international exchange programs into regular curriculums in our school. In addition, we intend to expand and operate exchange programs with more diverse countries on our own programs.

Management Structure and Roles of Faculty Members in Research Activities

—For the Development of Glocal Leadership to Create the Community of the Future—

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Summary

In order to promote research on an issue for 500 students in one school year, it is essential to establish an administrative structure, especially a system, and to clarify the role of teachers who act as facilitators. For second-year high school students who are assigned to a seminar to conduct their research, the introduction of a seminar leader system, the sharing of a goal image, and various events such as social gatherings will help eliminate the sense of inquisitiveness among teachers and students. For first-year students in high school, we will prepare for second-year students' activities by using common class contents for all classes to acquire knowledge and skills for inquiry activities, and to conduct research activities within a given theme. The role of the teacher in the inquiry activities is to help the students to keep the direction of the inquiry and to encourage their own self-direction.

Key words

SGH, glocal type, issue-based research, curriculum development, facilitation, self-direction

1.Introduction

Okayama Gakugeikan High School was accredited as a Super Global High School (SGH) for five years from the 2015 academic year, and from the 2020 academic year, it has been accredited by the Ministry of Education, Culture, Sports, Science and Technology as a special exception school for the glocal-type project of the “Project to Promote High School Education Reform in Collaboration with the Community.” However, since the school was certified as a glocal school, it has shifted to a school-wide program that covers all subjects and courses.

Before the SGH accreditation, the concept of global education was “global

education = cross-cultural exchange with overseas sister schools,” but since the school-wide implementation of inquiry activities, global education has become “a way of thinking about social issues that exist in the world as if they were our own, just like social issues in Japan”. Since then, global education has shifted to “fostering a mindset that views social issues in the world as one's own affair as well as those in Japan.” The next phase of our school's development is to hold a joint research report meeting with high school students from our sister schools abroad to showcase the results of our mutual exploratory activities.

The purpose of this report is to introduce the structure and curriculum of our school's research project classes, and to inform teachers about the role of the research project in our school's global education.

Methodology

Okayama Gakugeikan High School consists of an English department (one class per grade) and a general education department (12-13 classes per grade), with a total enrollment of less than 500 students per grade and 1,500 students in all. The regular course is further subdivided into several courses according to achievement goals^{*1}, but all classes have one class period per week for problem-based research. Since the main focus of the Theme Research class in the second year of high school is the seminar activities (Theme Research II), Theme Research I in the first year of high school is designed to help students acquire knowledge and skills for seminar activities and to prepare them for the next year by conducting theme research within a certain framework.

2-1. What is to be accomplished in the Subject Matter Research class?

In creating the curriculum, it is important to be aware of the perspective of what kind of students we want our students to become after completing the inquiry activities, and the guiding principle is the founding spirit of the school. The school's founding spirit is to “nurture good Japanese who can play an active role in the world,” and in order to nurture such students, it is necessary for them to not only have English language skills, but also to accurately recognize their own abilities and qualities, and to develop the ability to solve social problems in the community where they are based. Fostering these abilities will lead to the development of human resources who can lead society, and in turn, fulfill the school's founding spirit. Therefore, the purpose of the research project is to “cultivate glocal leadership that will create the future of the local community,”

and the abilities and qualities to be acquired are described in language (see 3-2).

2-2. Curriculum introduction of Theme Study classes for each grade level*²

Subjective Research I (for first-year high school students)

In the Theme Study class for first-year high school students, all the subject courses are shuffled and the classes are reorganized for the Theme Study class. Therefore, students from all courses are evenly present in the reorganized classes. This allows students to interact with each other outside of the research project classes, and they seem to be stimulated by each other.

In the second semester, students begin research on a regional or global theme based on the knowledge and skills acquired in the first semester, and in the third semester, students present and report on the results of their research as the culmination of their efforts to date. In the third semester, students summarize the results of their research in the form of presentations and reports.

1st semester (acquisition of knowledge and skills)	2nd semester (start of research on an issue)	3rd semester (preparation of results)
<ul style="list-style-type: none"> • Changes in society • Acquisition of information gathering skills • Data analysis • Presentation 	<ul style="list-style-type: none"> • Conduct research on a theme related to "the region" or "the world" • Interim report as appropriate 	<ul style="list-style-type: none"> • Presentation preparation • Conducting research debriefing sessions • Compile into a thesis or poster

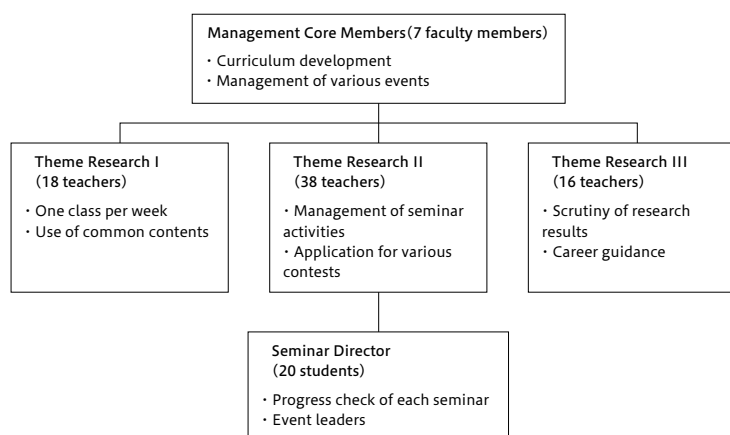
Research on an issue II (for high school sophomores)

From the second year of high school, students are assigned to one of approximately 20 seminars and begin their own exploratory activities according to their own interests. A seminar leader is selected from among the students in each seminar to play a central role in the seminar, and a monthly meeting of seminar leaders is held to share progress and communicate various events. As for major events, an exchange meeting between seminars is held in the first semester, an interim report meeting is held in the second semester, and a school-wide report meeting is held in the third semester as the culmination of exploratory activities.

1st semester (acquisition of knowledge and skills)	2nd semester (start of research on an issue)	3rd semester (preparation of results)
<ul style="list-style-type: none"> • Scrutiny of previous research • Discovery of research questions and formulation of hypotheses • interaction with other seminars 	<ul style="list-style-type: none"> • Conducting action (questionnaires, field surveys, experiments, etc.) to verify hypotheses • Proceeding with results and discussion 	<ul style="list-style-type: none"> • Compiling reports, posters, and other deliverables • Conduct research debriefing sessions both within the school and for external audiences

2-3. Management Structure

The management system involved in this year's Theme Study is headed by the core of the operation, which manages the operations of Theme Studies I through III. With regard to high school sophomores who are engaged in seminar activities, the seminar chairs of each seminar take the lead to encourage the seminars to run on their own. The seminar leader is the leader who grasps the progress in the seminar, assists in various events, and ensures that all communicated information is known to the students.



Since common content is used by all classes in the first year of high school, a 30-minute meeting is held at least two days prior to the implementation of the class to communicate the content to the teachers in charge, while meetings for other grades are held irregularly (about 4-5 times a year) as needed. Since third-year high school students are conducted on a class-by-class basis, each homeroom teacher is basically responsible for the class, but there are contents shared by the courses according to the career goals of the department courses.

3. Problem Study I - Creation of Original Teaching Materials

3-1. Understanding the current status of students

Since there is a limit to the number of students that can be seen in classes

and club activities, an awareness survey (Glocal Questionnaire) of all students is conducted twice, once at the beginning and once at the end of the school year for first-year high school students, and once at the end of the school year for second and third-year high school students. The questionnaire consists of about 50 questions, including questions on the student's activities during the year, such as “whether or not he/she has traveled abroad” and “how many times he/she has volunteered,” as well as questions on his/her behavioral characteristics, such as “whether he/she is aware of his/her own strengths,” “whether he/she can present his/her opinions,” and “whether he/she always has questions.” The purpose of the questionnaire is to determine whether the students are able to achieve their research goals through the course of their research project. Since the purpose of the questionnaire is to objectively see how students have grown through the subject research classes, it will be possible to see the growth of the school as a whole by conducting the survey according to the image of students the school wants to develop, setting the questions, and accumulating the data.

To briefly introduce the actual situation of our school as seen from the survey results, it was found that while students have a high awareness of social contribution and the awareness that they can make a difference through their own efforts, they have low self-esteem and low tendency to think and act with confidence. Taking these results seriously, we will revise the contents of the Subject Matter Study I class and the management system for the next school year.

3-2. Creation of original teaching materials

The school has set four qualities and abilities to be acquired through the Problem Study classes: “metacognitive ability,” “analytical ability,” “conceptual ability,” and “action ability”. In addition to focusing on one of these four qualities and abilities, the following points were taken into consideration when creating the teaching materials.

- (1) Is the material useful for research projects starting in the second semester and for seminar activities in the second year?
- (2) Are there any students who will be left behind?
- (3) Does it include a workshop format?
- (4) Whether the class makes students think, “I am looking forward to the next class!”

(1) is important, and students must be aware that they may lose most of the

content of the previous year's course if they cross over from one year to the next (in order to prevent this, first-year students will also practice their research in the second semester or later). In particular, conceptual abstract content is difficult to apply in practice, so emphasis should be placed on how “usable” the skills are. Although (2) through (4) are the same content expressed in different ways, the secret of success is to make the class enjoyable for both the teacher and the students.

4. Problem Study II - Role of Teachers

4-1. Construction of a system

One of the problems that teachers face in research on an issue is that they are in a state of “looking around,” not knowing how to proceed. In order to solve this problem, it is necessary to show the goal image of the research project in advance.

At our school, each seminar is required to submit the following two documents at the end of the school year: one is a research poster for each group that conducted the research (about 1-4 students per group), and the other is a research paper for the representative group of the seminar. The structure of the research paper and poster is similar to that of a university thesis or academic paper. As an example, a template for a poster (left figure below) and an example of a completed poster (right figure below) are shown below*3.

研究タイトル
～サブタイトル～
2年〇〇ゼミ 学芸 太郎

1. 活動の動機
『なぜそのテーマで研究をするのが活動のきっかけを導く』
ステップ①: そのテーマについてあなたが身近なことや興味を持った理由は?
方法: 自身の経験などを振り返って考える。

2. 先行研究
ステップ②: そのテーマは社会一般でどのような状況(問題)といわれていますか? 方法: 本やネットニュース・論文などで調査をする。アンケートで周囲の友人に聞いてみる

3. 課題
『問題(課題)点を明確に書く』
ステップ①: 先行研究に書いたことを踏まえて、自身が考える問題の原因について具体的に書く。
方法: Introduction ステップ②の内容を分析し、問題の原因を明確に書く!

4. 仮説
ステップ②: あなたはどのような理論に基づいて解決できると思うか (仮説) を書く。
方法: 「△△に比べて考えると〇〇すれば簡単になる」という仮説を立てよう!

5. 仮説検証
『仮説を検証するために実際にを行った活動と手法について書く』
ステップ①: 仮説を検証するために必要なデータは何かを考える
(Ex) 〇〇に関する意識に関するデータ
ステップ②: 『いつ?』 『どこで?』 『だれに?』 『どのように?』
そのデータを集めるかを計画を立てて考え、調整をし、実際に活動をする。
方法: 〇〇人にヒアリングをする。
準備をした後に△△人にアンケートする。

6. 検証結果
『仮説検証で実施した内容の結果をまとめる』
ステップ①: 活動して得られたデータ情報を図・グラフなどにまとめる
ステップ②: 得られたデータ情報から仮説に対する検証されているか分析・まとめる

7. 参考文献
参考にした文献 (表・ホームページ)

Excelでの作りか

OKAYAMA GAKUGEIKAN H.S. Global Project

人工環境下でのアミノ酸の発芽促進要因および干潟生物多様性の保全
岡山県立岡山高等学校 岡山県立岡山高等学校

研究動機
研究動機(イントロダクション)は、アミノ酸の発芽促進要因と干潟の生物多様性の保全に関するものである。アミノ酸の発芽促進要因と干潟の生物多様性の保全に関する研究は、近年注目されている。本研究では、アミノ酸の発芽促進要因と干潟の生物多様性の保全に関する研究を、岡山県立岡山高等学校で行った。本研究の結果は、アミノ酸の発芽促進要因と干潟の生物多様性の保全に関するものである。

研究目標
アミノ酸の発芽促進要因と干潟の生物多様性の保全に関する研究を、岡山県立岡山高等学校で行った。本研究の結果は、アミノ酸の発芽促進要因と干潟の生物多様性の保全に関するものである。

明らかにすること
本研究の結果は、アミノ酸の発芽促進要因と干潟の生物多様性の保全に関するものである。

人工環境下でのアミノ酸の発芽
アミノ酸の発芽促進要因と干潟の生物多様性の保全に関する研究を、岡山県立岡山高等学校で行った。本研究の結果は、アミノ酸の発芽促進要因と干潟の生物多様性の保全に関するものである。

水分と発芽率

水分	発芽率
10%	10%
20%	20%
30%	30%
40%	40%
50%	50%
60%	60%
70%	70%
80%	80%
90%	90%
100%	100%

リン濃度と発芽率

リン濃度	発芽率
10%	10%
20%	20%
30%	30%
40%	40%
50%	50%
60%	60%
70%	70%
80%	80%
90%	90%
100%	100%

ペントス酸 (単次試験)

ペントス酸 (月次試験)

結論
本研究の結果は、アミノ酸の発芽促進要因と干潟の生物多様性の保全に関するものである。

The example research focuses on eelgrass, a marine seed plant that plays a major role as a feeding and spawning ground for fish and shellfish. The students set the theme of “Factors that Promote Germination of Eelgrass Seeds in Artificial Environments and Conservation of Tidal Flat Biodiversity” to answer questions they had while working on the restoration of eelgrass beds. This poster summarizes the findings of the students' fieldwork and experiments on the germination of collected eelgrass seeds in the science lab. In addition to this research, some of the papers and posters prepared by our students are available on our reference website ^(*3).

Follow-up is essential in the process of creating such deliverables. For this reason, once every two to three months, the school holds events that transcend the framework of seminars, such as inter-seminar exchange meetings and workshops on how to take questionnaires. By setting a goal to be achieved at each event, the event itself serves as a rubric toward the goal of exploration. For example, at the inter seminar meeting in June, students fill out the poster template from “1. motivation for activity” to “3. issues” and share it across seminars. In the period leading up to the interim debriefing, we will provide guidance on “how to take questionnaires” and “how to write an introduction” after the regular examinations and during the summer supplementary study period, as well as other necessary guidance for the creation of posters as the deliverables. Then, after the research report meeting at the end of January, the students will complete the writing of the research poster and the thesis as the deliverables.

The deadline for submitting deliverables and the schedule of events are distributed in a booklet to seminar instructors and second-year high school students who begin the seminar at the beginning of the school year, so that they can refer to it at any time.

Role of Teachers as Facilitators

In our school, nearly 500 students are assigned to about 20 seminars, where they pursue exploratory activities according to their own interests. Although the number of students in each seminar is uneven, each teacher supervises approximately 10 to 20 students. Last year, there were 24 seminars and more than 130 inquiry groups, which means that each teacher is responsible for about 5 groups. Many faculty members are assigned to seminars according to their own

expertise, but some may be assigned to seminars that are not in their area of expertise, so relying on faculty manpower is not sustainable.

The role of the teacher in charge is not to work with students on inquiry activities or to make posters for them (or most of them), but to create an environment that encourages students to be self-directed. Examples of this include teaching students how to search for and read articles that serve as prior research, involving students in meetings with local governments, businesses, and non-profit organizations as needed, and encouraging them to enter external competitions. We recognize that it is the role of the teacher to support the students so that they do not lose sight of the direction of their exploration, but also to help them to focus on the fact that they are the main actors in their own actions.

5. Conclusion

In March 2022, at the end of the last school year, we had the first face-to-face meeting with another school in several years to exchange research projects. Although the other school was out of the prefecture, we were able to make the exchange a learning experience through close online meetings in advance. This exchange meeting was a challenge that was left to the students from the very beginning. We recruited core students from both high schools and had them decide how to organize the event, and then had them prepare the venue and run the event on the day of the event. The core students had no experience of being in charge of such a large-scale event from the very beginning, and from the discussion stage, both sides repeatedly came to realize and clash with each other. It was frustrating to watch from the sidelines, but it made me feel that this was a learning and educational opportunity. What made me feel the students' growth more than anything else was the way the core students looked after the meeting. The students reflected more on what they should have improved than on what they had achieved, and they voluntarily reflected on what they had done well and what they needed to think about more, looking ahead to the next event. The teachers' well-meaning efforts to prepare a path may deprive students of the opportunity to think and grow on their own. Of course, throwing everything at the students does not work either, so the facilitation skills of the teachers, which they have cultivated through their research on the subject, come into play. The challenge and prospect for the future is to create such great learning opportunities for students and teachers alike in every situation.

We would be happy to hear from any schools, both domestic and international high schools, that would agree to work together to create such learning opportunities. Let's explore what we can do together for the expansion of students' insights and for the growth of teachers.

Reference HP etc.

Okayama Gakugeikan High School

<https://www.gakugeikan.ed.jp/course/index.html>

Okayama Gakugeikan High School: Introduction of research activities

<https://www.gakugeikan.ed.jp/introduction/glocal.html>

Okayama Gakugeikan High School, Research Project Results for the 2021 academic year

https://www.gakugeikan.ed.jp/up_load_files/Glocal_Report_R3.pdf

Inspiration and Motivation

Aurea Obeso

(Head of Secondary School, Colegio Ward, Buenos Aires, Argentine Republic)

Summary

It is an interconnected world, in which education plays a major role in providing the skills needed for a sustainable and inclusive society. The ICTs make the “global village” a fact, therefore it is imperative for educators to make our students see this fact through meaningful activities; We are facing a new world in almost every area in education and technology. Significant experiences can help different school communities in aspects which are related to global awareness, in both theory and practice as well.

Key words

Diversity, School, Participation, Experiences, ICTs, Change, Teacher-training college, Cooperation, Global citizenship, 21st century skills, Cross-cultural understanding, Transformative education

Walls and rooms in our school have inspiring phrases, which were thought, chosen and placed there, by its founders about 100 years ago. If you walk alongside wide corridors or sunny playgrounds, adults, children and adolescents can read phrases such as “Think, and let others think” or “Plus Ultra” among many others. They are friendly reminders of what education is all about. It is amazing that the school founders had, that long ago, such profound modern ideas and vision. My school has always had a solid tradition that aims to warmly embrace diversity; since its beginnings Ward School has always fostered, in both students and educators alike, cooperative work, and state-of-the-art methodologies that involve deep values and a philosophy of involving others; this is a fact which is extremely rewarding and nowadays much more because, thanks to the new technologies, we can see what other institutions do in this same aspect, and even more, join efforts with other schools which pave the way for present students who, in the near future, will be immersed in a world that needs dedicated global citizens, who should reconsider certain concepts like inclusion and diversity.

ICTs make the “global village” a fact, Dr. Joan Kang Shin (Shin, J. K., &

Crandall, J. (2014) says “The twenty-first century is not just different in number from the previous centuries. We are facing a new world in almost every area—education, technology, population, environment, politics, economics, etc. It is an interconnected world, in which education will play a major role in providing the skills needed for success. Teaching those skills is a requirement for all educators” This statement implies more than an invitation, it poses on educators, a daring challenge because we need to change old fashion teaching practises that have been rooted for decades in our daily practices; like Alvin Toffler said “The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn”. Teachers should choose to include more open-minded ways, which invite our students to get involved in global issues that are relevant to our present world. We need to rise to this historical moment which is all about change, commitment, and peace confirmation.

Participating in important events such as the Education Forum held every year by Morioka Chuo High School, is of great significance toward more inclusive education practices: students, and teachers from all over the world, from various and different cities can interact and work together, a clear example of cooperation in order to achieve a very relevant goal: reflecting upon issues that improve our communities, our countries, and our planet. The Chuo High School Education Forum is a stepping-stone experience that helps different school communities in aspects which are related to global awareness, in both theory and practice as well; learners from all over the world, deal not just with extremely significant topics but also, they do so in an amiable and collaborative way researching, working together and co-authoring. Our students have an innate natural way to overcome differences what is more, they accept them and thrive in them. In such cooperative events, young students show everybody, how easy it is to welcome differences, and flourish peacefully in pursuit of a common goal.

The Forum and other similar experiences, are a great opportunity to stimulate our students in aspects related to 21st century skills, Trilling and Fadel (2009) list several topics related to this, which they call the “C” list.

- Critical thinking and problem solving
- Creativity and innovation
- Cooperation, teamwork, and leadership
- Cross-cultural understanding
- Communications, information, and media literacy

- Computing and ICT literacy
- Career and learning self-reliance
- Collaboration across cultures

The world is showing us that we need to transform Education, with lifelong learning strategies. UNESCO proclaims “Why do we need to transform education? Our world is facing unprecedented challenges - climate change, violent and hateful ideologies, mass loss of biodiversity, new conflicts and the risks of global pandemics to name only a few. What is “transformative education”? it is the kind of education that empowers happy and healthy learners to take informed decisions and actions at the individual, community and global levels.” Our students must relate themselves with the world and find coherence between what they see at school and the world we all want to create; learners should be involved in actual collaborative networking tasks, genuine empathy boosters, complex problem-solving strategies, connection to other human beings and nature. All the ideas, tasks and activities that we create as teachers need to achieve that, and at the same time nurture a kind atmosphere (UNESCO proclaims “happy students”) in which everybody at school can feel valued, acknowledged, safe and included in the community as full and active members. Teachers should transform their teaching ensuring that the curriculum content, pedagogy approaches, learning materials, and school environments are meaningful. Again, that is why we need to put into practice activities that sparkle in the school community, through format and objectives, relevant projects that involve topics such as responsible citizenship in a global community.

Specialists agree the first step in order to achieve a real transformation in educational practices, is to change teachers’ preparation, a true conversion in teacher training colleges, or support webinars/seminars, lectures for educators. According to authors G. Kennedy · Gloria Latham · Hélia Jacinto, the 21st century teacher-researchers need to:

- become part of a global community of professionals to foster informed ongoing discussions about teaching.
- get engaged in more multi-disciplinary, multi-sector research about teaching.
- guide the development of their own and students’ higher order thinking skills, technological skills, skills of social interaction, and collaborative learning in contexts that are meaningful.

- keep the teaching-discipline knowledge current and remain critical consumers of content.

Schools that organize or take part in events in which many other institutions also are engaged, are summoning true participation that will eventually lead to stimulation and action for change and improvement. Moreover, when teachers start working with other colleagues, they upgrade their own teaching and better up their own work, since reflection brings questioning and re thinking strategies, especially in our modern changing world. McCain and Jukes (2001) noted, “In the past, when information had a much longer shelf life, learning was something that was done once in your youth. Then you were done with learning for life. In the good old days, what you learned in your youth prepared you for your single career. Today, learning has become a lifelong process. Given the rapidly changing nature of our world, people of all ages must constantly learn and relearn what they need to know. What they learned yesterday may no longer be valid in tomorrow's world. Tomorrow, they will have to learn again because today's information will already be out of date” (p. 89). Teachers will only teach or talk about making a difference in a committed way, when authentic transformation happens in the education and preparation of educators.

Whenever schools open their minds, hearts and doors, they get the true chance to improve education by providing their learners with actual opportunities to live cross cultural experiences; making our students experiment global perspectives through school trips and overseas experiences is a satisfying adventure that inherently implies a lot of effort and logistics, but everything is worth the effort because we are really making a difference. Geographically speaking, for schools in countries situated far away from the rest of the world, like my own, travelling abroad to meet other cultures is a true challenge that must be confidently taken, despite the problems or difficulties that may arise. Covid-19 restrictions made it impossible for a while to travel and work with others in different countries; however, Technology came to the rescue with different platforms and digital tools that helped us overcome the problem and remain connected with others; the question is “Can our students have the opportunity to achieve cooperative tasks and global experiences through technology? Fortunately, the answer is “Yes, of course”! Our school participated in two virtual forums in 2021, the first one in May “3er Encuentro de Estudiantes Secundarios de ALAIME (Asociación Latinoamericana de Instituciones Metodistas de Educación)”, in which students from Argentina, Bolivia, Brazil, Chile, México,

Panamá, Perú, and Uruguay discussed future scenarios for university students in post pandemic Latin America. At the end of this virtual event, students produced a statement which proclaimed that secondary school students from Methodist schools, agreed to:

- Learn how to organize time, regulate self-learning and studying habits
 - keep in mind their responsibility of privileged adolescents who can study while many others can't
 - Pay attention to psychological and emotional aspects which lead to school dropout
 - Be ready to ask for help as well as giving help to others who need it
 - Have and show empathy toward others
 - Help families, cutting down superficial expenses, in these difficult post pandemic times, in which the world economy has been weakened,
 - Promote local economy buying products in small community town or village markets
 - Help the environment, saving energy, water, and fuels
 - Apply for university scholarships, so that superior education is available for those who can't have access
 - Maintain a fit healthy way of life, both physically and mentally
 - Keep up a hopeful point of view, despite international conflicts that affect different countries
 - Foster artistic, recreational outdoor activities for those young students who need support, especially after several lockdown periods
 - Cope with uncertain future times, without becoming weak by these situations
 - Contribute to a positive and nurturing feedback between students and teachers
- In one word, to help spread these ideas following John Wesley's ideas "the world is my campus"

The other virtual event was the Morioka Chuo High School Forum, which despite time zone differences, proved to be a very refreshing activity for two reasons, first because of the way the students communicated effortlessly and because of its topic "Think globally, Act locally", topic that compelled our students to research themes like, life on land, soil erosion, and how forest fires affect our world; the students also were able to share how covid-19 situation affected them and their schools and they even shared a melody from Argentinian

musician Astor Piazzolla. Adolescents who are 18,059 km/ 11,231 miles apart, still share the same fears and hopes.

I had the chance to accompany my students on both opportunities and I was a privileged witness of mine and other students' inner capacity to naturally interact and spontaneously communicate with other participants, and how they all, learners from distant, and varied places instinctively interconnected themselves in such a relaxed way, dealing with very relevant matters, despite the distance, the virtual setting, break-out groups, and typical technical delays. They were able to exchange ideas, discuss proposals, debate key thoughts and draw serious conclusions about important issues such as inclusion, human rights and climate change. Beyond the dynamics of the forums, it was really rewarding and satisfying to experience such a fresh way of communication among perfect strangers, that fact is an instance of true hope for a better future; future global citizens who want to create more than virtual hyperlinks, they want and can build real links and bridges with other peers. Sir Ken Robinson said "We are living in times of revolution- I mean this literally, not figuratively. Humanity now faces challenges that are unprecedented in our history. These challenges are being driven by many interacting forces. They include the exponential rate of technological change, the massive shifts in population and our unsustainable demands on the earth's resources. (...) We need to think differently about ourselves. Human resources are like the earth's natural resources. They are highly diverse and often buried deep beneath the surface. They need to be discovered, refined and applied" It seems our young and responsible students can show us that they can overcome the difficulties described by Sir Ken Robinson, provided we give them the chance to participate in enriching collective activities.

I mentioned before, at the beginning of this article, two core concepts "motivation and inspiration", the question is: "Do we, educators, motivate students by giving them opportunities of participation in meaningful experiences related to a better and inclusive society, peaceful world and sustainable planet?" ... or "Do young students inspire us when see them conscientiously getting involved in such relevant issues with commitment and resolution? Surely both.

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Personal Growth Through International Exchange

—Learning for both Students and Teachers—

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Key words

International exchange, problem finding, self-reliance, communication skills, Challenging Spirit, Positive Attitude and Leadership, Co-education

1. Introduction

From the end of the 20th century to the 21st century, the Internet began to expand. At the time, I was pondering how to utilize this new tool for education, which had the potential to significantly change the learning environment. Looking around me, I saw that the main uses were for research and learning and for sending out information via homepages, but I felt that there were even greater possibilities.

I also began to think about using it for international exchange because of its advantage of connecting with the world. For myself, the language barrier of English was the biggest concern at the time, and since I was also making my way through international exchange itself, it was difficult for me to move forward. It was then that I came across iEARN (International Education And Resource Network). 2.

What is iEARN?

The International Education And Resource Network is an organization that supports international collaborative learning. It began during the Cold War between the U.S. and the Soviet Union, when a high school student in New York City suggested to his teacher that he and his Soviet counterpart engage in dialogue because the Cold War would never end and it would be impossible to leave the matter to adults. The teacher found a school in



Mitsubishi RUMAPHONE

Moscow as an exchange partner and placed the then state-of-the-art analog videoconferencing system in both schools. The latest model at that time was called a Lumaphone, which could send still pictures on a small screen, but it took several seconds to send a single picture, during which time no conversation could take place. Even so, the high school students were enthusiastic about seeing each other's faces as they talked, and the conversation was very lively.

Upon hearing the news, teachers around the world offered to do the same, leading to the formation of iEARN. Today, it is the world's largest educational network with teachers and students from more than 140 countries and regions, and has over 200 projects. And if online is not enough, once a year iEARN members hold a world conference in a country somewhere in the world, with more than 400 participants from dozens of countries each time. In Japan, the World Congress was held in Hyogo Prefecture in 2003, and was scheduled to be held at Okinawa Shogaku High School as the main venue in 2021, but unfortunately was cancelled due to the Corona pandemic.

3. We Want our Students to participate in the World Competition

The person who introduced me to iEARN asked me if I would like to participate in the 2001 World Congress in South Africa. I thought it would be my first and last chance in life to go to South Africa, so I decided to attend, and it was there that I had a life-changing experience.

Eight hundred educators and students from all over the world attended the conference at the University of Cape Town. People I met for the first time spoke to me in a friendly manner as if we were old friends. Where are you from, what kind of project are you working on, that sounds interesting, let's do it together. I can only speak one language, but they patiently listen to me and we become friends. There was a world where racial differences and national conflicts had nothing to do with each other.

I want to bring my students here. It would be a shame for me to be the only one to participate. I returned to Japan with the hope of somehow bringing my students with me.

In order to achieve this goal, which was not possible in a public school, I transferred to a private school, Okinawa Shogaku. I then founded a club that no one had ever heard of called Aiyon Okinshogakko, and for 20 years, he has participated in the Aiyon World Convention.

4. Learning at the World Convention

The World Convention is held every year in July. At the convention, we report on the results of our activities over the past year. Every year, starting in May or so, all club members work on their presentations, drafting the manuscript, translating it into English, and creating a PowerPoint file in English, all on their own. It is quite a burden for the students, but when a bilingual student came in, we relied on this student to do everything and nothing else. There were times when we banned bilinguals from joining the club because we felt that this would make our activities meaningless. However, we changed the policy because we felt that rejecting students who wanted to join the club was problematic.



In Khiva, Uzbekistan

The students were encouraged to develop their own ability to express themselves through friendly competition by asking each other what they had thought about how to say what they wanted to say and how to say it in English. Students who work diligently also acquire English skills, and most of them have passed the second or first level of the EIKEN English Proficiency Test.

Although club activities are combined at the junior and senior high schools, the grades in which junior high school students can participate in overseas study programs change each year, depending on their developmental stage and the content of that year's program. In most cases, students start from high school, but there are also cases where students from the third year of junior high school can participate, and in rare cases, students from the second year of junior high school can also participate. Since the students go to various countries, emphasis is placed on learning about the local area. We got acquainted with the Anne Frank House Museum in the Netherlands through iEARN, and when attending the Netherlands conference, we learned about Anne Frank's diary, visited the Anne Frank House Museum, and also visited the Auschwitz camp site in Poland. All of us cried there and became aware once again of how wrong war and racism are. The students have visited Auschwitz twice in total and would like to do it again if they have the chance.

After the World Convention, we spent a few days touring the area, visiting



In Qatar. Message read out from the Japanese government. After this, students report on the current situation in Tohoku.

local schools and homestay with the students' families when possible. The students would do preliminary research on the history and culture of the places they would visit and decide on the course of their visit. It was like a tradition in the department to choose not many so-called tourist destinations, but rather negative world heritage sites or visits to poor areas. Sightseeing, they said, is for adults, because now they have teachers who teach them about the negative aspects of the world. In Slovakia, they toured a castle, which was not only a beautiful place, but also a torture facility, and they were greatly shocked by the history of the country due to the difference between the actual facilities and the letters in the guidebooks, which only say that there are prisons and torture facilities.

For quite a few students, the experience of these club activities seemed to have made a big difference in their subsequent choice of universities and employment, and even more than 10 years after graduation, students who keep in touch with us tell us that the experience changed the way they live their lives.

5. From ICT Technology Acquisition to Silicon Valley Training

Since we interacted through the Internet, various ICT technologies became indispensable, and since we used cloud services a lot, our connections with

people from various Internet service companies also increased. This led to the Silicon Valley training program held every March, which unexpectedly led to the children's growth.

Google, Apple, Evernote, and Pixar are the standard companies to visit, which is attractive enough, but two weeks after Pokemon GO broke through, we were able to visit Niantic. This company was the third in the world to be interviewed after Pokemon GO was announced. They had turned down all of them, but they were interested in coming from Okinawa with only high school students. I was able to talk to the Japanese director. The interview was scheduled the day before. I thought of an interview that would not ask boring questions like “Why did you think of Pokemon GO?” I gathered information about the person I was visiting, and since I was interested in his way of life, I compiled a list of questions about his life choices since high school. “I am now a sophomore in high school and I am struggling with this question about my future. When you were a sophomore in high school, had you already decided to go to college in the United States?” “What made you think that way?” You told us that this was the first time for you to conduct such an interview and that it was very interesting.

If they can prepare in advance, they may create a presentation as well as an interview; at Pixar, they research their work in advance and summarize their impressions of the evolution of Toy Story 1, 2, and 3, for example, not only in terms of storytelling but also in terms of technological evolution, so that each student can imagine. The students are very excited when they receive a response that they may be flattered, but that they have sparked a new idea.

The way of life of people working in these IT companies, such as Google,



In Sao Paulo, Brazil

is inspiring and seems to break the conventional wisdom that the students had. Many of the students' questions were about what they were thinking in middle school and high school, about turning points in their life choices, and their eyes change color when they realize what this person was thinking when they were the same age as they were. And students who had never given English a second thought before, now see the need for it and begin to study hard or rethink their future careers.



In Dakar, Senegal

In the Silicon Valley training program, the motivation for participating is to go to Google or to see Pixar, but by the end of the program, it is more about who they met than about what they saw at the company. The reason why we put so much effort into the Silicon Valley training as well as the World Convention is because this kind of change really shows up in one week.

6. Support for Disaster-stricken Areas

What began through overseas exchanges was support for earthquake-stricken areas and impoverished regions. It all started with the 2003 earthquake in southern Iran. In that year, the first Iranian woman to win a Nobel Prize was produced, and it was a friend of a friend of iEARN's friend. We were happy that our friend's friend had won the Nobel Prize, but then we learned that the same year the earthquake hit southern Iran and many of our friend's acquaintances had been affected. We wanted to share both joy and sorrow, and for the first time, we started a fund-raising campaign in our club. Since then, our support activities have expanded to include support for the earthquake and tsunami stricken areas in Indonesia, and for impoverished areas in the Philippines.

Then, on March 11, 2011, the Great East Japan Earthquake struck. A friend from Indonesia said to me, "We have already received enough support from you. Now we would like you to support your own country."

Through the support activities, I have learned a lot. Many of our students have told us that we have not only encouraged them, but that we have been inspired by the power of the survivors to live strongly.

7. What Have You Learned?

When asked, “What do you get out of this club?” Students answer, “It is a power that will be useful five to ten years from now.” Students who entered the University of Tokyo answered that they have learned “things that are necessary when they enter society but cannot be learned by attending school normally.”

By visiting various countries and regions and interacting with people from all over the world, students learn about the differences in environments and cultures. There was a big gap between what they learned from books and words and what they actually saw and heard. Through cooperative learning, I learned about the customs of others and accepted their thoughts and feelings. In the overseas training program, they experienced a world they had never known, looked at their own environment in the world again, and thought about how to live. As this is passed on to the younger students, it becomes a great growth.

Today's club activities do not require the help of an advisor. They plan and draft their own activities and apply for projects on their own. The students, who were children, are now as capable or more capable than adults.

When I summarize the activities, I write as if I have been teaching the students, but in fact I, the teacher, have been learning together with the students. In fact, I, as a teacher, have been learning with my students or being taught by my students. Perhaps education is not about the teacher teaching, but about growing up together.

LET YOUR STUDENTS DO THE WORK

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Abstract

Active learning and differentiating instruction are popular nowadays. It is not only because trending but yet believed to be practical in improving students' motivation, engagement, and interest in learning experience at class. There are a few strategies the writer has conducted by on his experience that the readers can try to apply as well.

Key words

active learning, differentiating instruction, teaching strategy

Have you ever felt drained out due to lots of classes and your voice almost to mute? Did you find that your students became more passive since you took stage all the time? If your answer is yes, it means that you are the spotlight of your class instead of your students. Anuradha (2021) states that, in a teacher-centred classroom, the teacher talks excessively and students continue to listen where teacher-student collaboration is discouraged. This approach tends to get students bored leading to capturing less of their focus in the lessons.

To be energetic and mobile for every class we teach is somehow fine. Nevertheless, it is exhausting and, in fact, active teachers don't always represent a good education as well. Active learning, as Tanja McCandie (2020) explained, involves students in the learning process whose students' participation is essential. However, the teachers' role as a facilitator is more crucial to control the meaningful experience the students gained.

There are some strategies to create active learning in the classroom, such as:

- 1) Sit in groups or pairs to allow teachers to monitor, move around the class and really listen to the language they are producing. When I was teaching the tenth graders which have various level of English fluency, I tend to pair my students into three kinds of pairing: (a) Advanced – Beginner, (b) Intermediate - Beginner, (c) Beginner – Beginner, in order to figure out the amount of idea each team can

collect. For example, in discussion the main idea of the text in reading session, the A teams were able to the closest context to the main information given where the beginners asked to elaborate the idea – though they found a little bit difficulty in describing how to get the answer, the B teams could get the idea yet they managed to write almost all the sentence written in the text without making conclusion or paraphrasing, and the last team – the Cs - used google translate to understand the meaning of the whole passages so that they could get the idea in Bahasa Indonesia and made another translation by taking some of the sentence like the B teams did. The effort to make them learn actively without being dictated by teachers make them experience better in understanding the passage. Then teachers gave feedback and appreciation to help them grow.

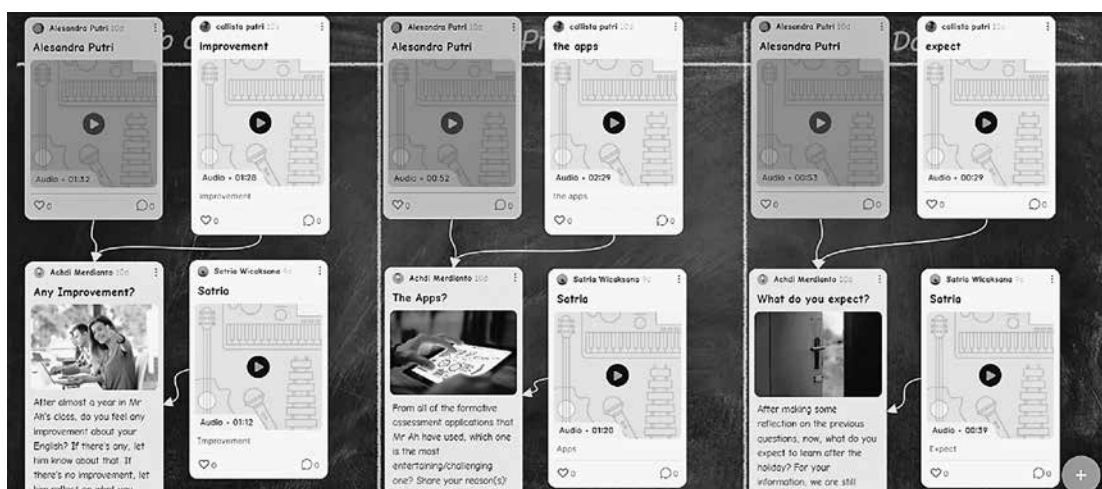
2) Debate on a recent issue to help students develop their communication, listening skills and ability to draw from given information, as well as to make and defend against arguments with logical and rational thinking. Since the level of my students were too various, instead of debating orally, in the online learning, I did this in the form of writing class by using Padlet. I prepared some familiar motions that they experience(ed) in reality, such as: The use of make up by the secondary students and should there be homework for students. I divided them into 4 groups: Proponent versus the opponent of the first motion and Proponent versus the opponent of the second motion. In each turn, about 15 minutes, students argue and explain their thought supported by fact they found on the internet. It went for about three to four turns. In the main room, I asked randomly about the reason they wrote those ideas and facts, the amount of time they needed to discuss and got the necessary fact, and thus the feeling of, perhaps, contrasted to the issue given. Imagine, when you don't like any homework, but you need to be the proponent of it. The fact that my students found it as an exercise to improve their English, as being neutral, I believe they learned about criticism



from different point of view. Who knows they became the proponents of homework?

Debate activity of SMA Dwiwarna's Students in the English Class
Photo credit: instagram of Achdi Merdianto

3) Share feedback - teacher to students, students to teacher, and students to students - helps them develop lifelong skills in assessing and providing feedback to others and equips them with skills to self-assess and improve their own work for positive growth. Many ways to present this idea: using Google Form, Padlet, Google Jamboard, Mentimeter, or even a direct heart-to-heart discussion in the class. My students advised me to reduce my tempo in explaining the lesson, which recently became my habit to keep asking them if I spoke too fast, or how they told me that they liked the gamification lesson they had for each of the chapters, which made them more interested to attend the class.



Students' reflection in audio by using Padlet

Concerning point no. 3, to achieve the goal of active learning, teachers are demanded to give students autonomy about what and how they want to study. It allows them a chance to decide how they prefer to approach the activity.

In the first meeting where they have orientation, teachers may ask students about how they want to study and their learning goal. It is a way to help them learn how to make a decision on what they need.

After teachers share the semester plan, they can ask students to choose the way they want with a particular project. In my class, for example, in the Song topic, I let them have any media to present their project. I give some available options, like: interactive Canva presentation, Power Point Presentation, or any interactive media that can support their performance. This, actually, supports the idea of differentiating instruction (DI) where teachers adopt to attend to student diversity in inclusive classrooms. This way, students will feel more appreciated

to their various interests. Thus, they are empowered without being dictated. In addition, teachers add some lists that they haven't heard or used in the classroom from the students.

Carol Ann Tomlinson (1997) described differentiated instruction (DI) where teachers anticipate the differences in students' readiness, interests, and learning profiles and, as a result, creates different learning paths so that students have the opportunity to learn as much as they can and as deeply as they can. As a matter of fact, as a teacher, I have been trying to conduct all the procedures so that I can make a difference.

John McCarthy (2014) stated that there are three steps for effective DI, such as: (1) knowing the students' academic strengths, interests, and perspectives, (2) involving students in the planning process by giving them the academic criteria used to assess the targeted content and related concepts, and (3) Team-teaching with another teachers which opens an opportunity for students to have a voice and perspective that is different from the main teacher in order to be successful. I harnessed google form to diagnose the students' learning style assisted and then evaluated by the counselling teacher. This collection of information is valuable data to assess their need and learning goal since they came from different level of English mastery, learning motivation, and interest. This will help them find suitable, effective, and meaningful so that teachers may facilitate their dream class.

Tomlinson and Imbeau (2010) suggest that teachers continually ask what they need in order to be able to progress and what teacher needs to do to make that happen. Indeed, teachers need to be involved in the process to design successful learning experience. This does not mean that when students decide what they are interested at to work on their project, they will need no assistance – they do need. As teachers, we need to make sure that the goal of the study is accomplished well through guided learning from the creative process in class, or – for an extra hour – I let them send the draft for revision. It is a lot of works, I know it, but if teachers intend students to gain meaningful experience on their composition, we need to spare some time. Lucky you when you can do it on your workhour. Yet, as an option, teachers may list the students' common mistakes in their composition so that feedbacks can be focused on those improvements.

Another example of active learning with DI I had in my class was when I taught a chapter named Caption where I gave students example about works related to the topic, such as: social media posts, comic strips, and news item. In this matter, students are aimed to be able to communicate through English in a form of creative media happening at the moment.



English Caption Project in the 12 Grade SMA Dwiwarna Indonesia

Some students recreated a story from silent comic or graph elaboration. I found that 40% students were eager to make essay supported by data, in form of graph elaborated in the caption, and the others, around 60%, were with the comic strip story. There were some reasons they had regarding their project, for instance: the interesting media they are keen on, the challenge to write as essay since they need to make one for the University entrance test, and the last was the idea evoked by their recent reading. This simply gives them opportunity to develop their interests and needs in a proper classroom.

Be remembered that your students are diverse. However, to make sure they gain something from your involvement at class is crucial. It is therefore be the teachers who differentiate effectively by using a range of data sources to pinpoint what students currently know, and what they are ready to learn.

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Leading the Way or Just Catching Up? New Steps Beyond “Hello” in Japanese English Education

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Abstract

Why is it that Japanese learners of English are able to speak simple greetings in English, but are not very good at developing their English into conversation beyond that level? As an English learner, I thought about what Japanese English education has left aside in terms of communication in English based on my own experience.

I would like to examine whether students have “speaking content and passion” rather than English pronunciation and accuracy, whether the content is derived from familiar real-life experiences, and whether they are prepared for conversation on a daily basis.

In addition, in order for Japan to move from the position of “trying to catch up” to “leading the way” in communication with foreigners, we should have confidence in Japanese pronunciation and consider interaction with non-native English speakers.

Key words

English learning, communication, non-native English speakers, TED, Cool Japan, small talk

1. The Silence After “Hello”: The Current State of English Language Learners

“Hello” is probably the most common English word said to Japanese students by foreign tourists visiting Japan and foreigners living in Japan. When encountering a foreigner of European descent on the streets of Japan, Japanese students will repeat “Hello” with excitement. The kind-hearted foreigner smiles and says “Hello. How are you?” The students are more and more willing to communicate with each other using simple English expressions such as “Fine.”

In our school, the same kind of communication takes place between foreign teachers and students. It is a funny scene, and it helps to create an international atmosphere. Whenever I see such a scene, I try to quietly observe it. In most

cases, after a few friendly “Hello's” are exchanged, there is almost no active conversation going on from the Japanese students' side, unless the teacher asks more questions and tries to continue the conversation. The friendly and cosmopolitan “Happy Hour” comes to an abrupt end.

A simple greeting is an important part of human interaction, and it is not necessary to have in-depth conversations with everyone. However, students who would talk with their teachers and friends in Japanese for minutes on end, in English, often end their conversations with a simple greeting. This is a great opportunity for them to test their English skills, but rarely do they go beyond greetings.

This is not limited to students. It is the same for adults. Even among those who are fluent in English, very few people, unless they are very proactive, will continue a conversation that begins with “Hello” for more than 10 minutes. It is easy to say that the reason for this is that English is not their native language and therefore difficult to speak. However, I believe there are two more important factors: confidence and the desire to speak from the bottom of one's heart.

2.The difference between speaking with foreigners and speaking with other Japanese

Speaking English itself is nothing special. Most people can improve their English to a certain level by increasing their vocabulary and understanding grammar to some extent. The problem lies beyond that. The question is whether or not you have the enthusiasm and the knowledge to speak with confidence and enjoy the conversation. In other words, whether or not you can go beyond “Hello”. Speaking with a foreigner in English is not just a matter of converting the conversation we usually have in Japanese into English. Speaking a foreign language is similar to a sport. Suppose a table tennis player has to participate in a tennis tournament. Even an athletic and strong ping-pong player needs to learn the rules of tennis, switch from a ping-pong racket to a tennis racket, and train muscles that are not normally used. The reason why English conversation is not progressing is because they are trying to play tennis using a table tennis racket and with the rules of table tennis.

What are some of the obstacles to conversation between Japanese and foreigners beyond proficiency in English, especially for Japanese in this day and age? I believe that there are two major ones.

3. One of the reasons for the lack of progress in conversational English is that the Japanese are not able to speak English well enough.

One of the reasons for the lack of progress in English conversation is the belief that one must speak fluently. When learning English in Japan, most of the opportunities to speak English are in school classes or in artificially created settings such as English conversation schools. There, of course, there are teachers who correct mistakes, and speakers inevitably become reticent. By trying to speak correct English, they end up repeating the same expressions they are used to and end up having bland conversations, swallowing what they really think.

Imagine the tastelessness of such conversations. We are lifelong learners of English as a foreign language, and we must make ourselves more tolerant of errors in pronunciation and grammar.

It is estimated that there are 1.5 billion English speakers in the world today, but only a quarter of them are native English speakers, and 75% of them use English as a second language (Figure 1). (Figure 1) In other words, three out of four people are non-native English speakers. While we Japanese are still too busy being frustrated with our own pronunciation to use English, non-native English speakers are learning, interacting, working, and living in English all over the world. It is time we realize that we should be spending our time and effort on something more important than perfect pronunciation. At the same time that we accept Japanese English for ourselves, we must also grasp the various pronunciation characteristics of non-native English and become accustomed to communicating with other non-native speakers.

TED (Technology, Entertainment and Design) sometimes has excellent talks in English by non-native speakers, and the world-renowned architect Shigeru Ban is one of them. This is not because Mr. Ban speaks fluent English, but rather because his English has a distinctly Japanese accent. The English that Mr. Ban must have struggled to acquire after graduating from high school and moving to the U.S. is also his resume. As with all TED talks, Mr. Ban's presentation is highly

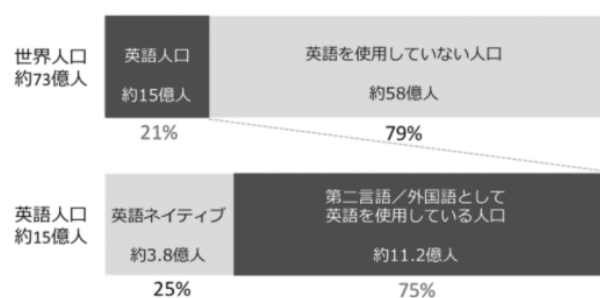


Figure 1. Japan Ministry of Education, Culture, Sports, Science and Technology, United Nations, U.S. Visa Talk and Crystal D. The English Club, based on data from A History of the English Language, World English Population and Percentage of Non-native English Speakers (2019).

entertaining. He speaks in the manner of someone who has been trained in how to effectively communicate what he wants to say to others. Perhaps he has learned how to debate in the course of his work in the United States.

It is this kind of powerful English that I want my students to acquire. I showed this lecture with subtitles to my second-year junior high school students so that they could see that speaking persuasively and with passion can do more than beautiful pronunciation and precise expression to win people's hearts and minds. Teachers should actively increase their students' exposure to high-quality non-native English.

4. Are they prepared on a daily basis for what they are going to say?

Are we trying to have a conversation with a foreigner with our bare hands? Conversation requires diligent preparation. Table 1 shows the results of a survey conducted in 2018 by the Secretariat of the Intellectual Property Strategy Office of the Cabinet Office among foreigners. It shows that foreigners are interested in Japanese anime, manga, games, music, and food. These topics are familiar to students. Instead of asking rude questions such as, “Do you eat natto? What kind of manga did you read as a child?” If junior high school students know in advance that topics such as “Have you ever listened to Japanese music?” There is a high possibility that junior high and high school students will be able to deepen their conversations through Cool Japan. In order to do so, it is necessary to be interested in a variety of things on a regular basis and look at things with fresh eyes.

Many foreigners are interested in history and traditional culture. Although these topics are harder for students to jump into than anime, etc., there is no need to suddenly introduce tea ceremony culture like Okakura Tenshin. At first, it is enough to talk about the history of your town

Q What made you interested in Japan (select 3)?

日本に興味をもったきっかけ	欧州	アジア	北米
アニメ・マンガ・ゲーム	75.00%	56.60%	23.15%
映画・テレビ番組	12.00%	24.06%	11.11%
俳優・芸能人・アイドル	9.00%	21.23%	2.78%
セレブ・有識者等のインフルエンサー	0.00%	0.94%	0.00%
音楽	27.00%	28.30%	10.19%
ファッション・美容	11.00%	10.85%	5.56%
アート・デザイン	7.00%	7.08%	12.96%
ライフスタイル	13.00%	10.38%	18.52%
自然風景	10.00%	20.28%	16.67%
日本食	24.00%	22.17%	27.78%
観光	12.00%	25.00%	23.15%
歴史（神社・仏閣等の建造物を含む）	23.00%	5.66%	21.30%
伝統文化（茶道・歌舞伎・日本画等）	23.00%	14.15%	16.67%
伝統工芸品（陶磁器・漆器・織物等）	6.00%	1.42%	6.48%
日本独自の精神文化（禅・武士道・わびさび等）	9.00%	0.47%	12.96%
科学技術	6.00%	10.38%	9.26%
スポーツ	0.00%	0.94%	0.93%
日本製品	3.00%	8.96%	10.19%
学校教育	3.00%	8.02%	3.70%
日本の歴史や語学などの学び	11.00%	11.79%	12.04%
仕事	0.00%	4.72%	4.63%
その他（自由記入）	3.00%	1.89%	10.19%

Table 1. Survey of Foreign Attitudes toward Reproducing Cool Japan (2018). Visual Industry Promotion Organization (Commissioned by the Secretariat of Intellectual Property Strategy Promotion Office, Cabinet Office)

or familiar culture. Before speaking in English, I would like you to first consider whether you can speak in Japanese. You should also abandon the illusion that it is Japanese people who know more about Japanese culture. As you explain, you will have a chance to come in contact with a new way of perceiving Japanese culture from a foreigner's point of view. In order to enjoy mutually transmitted conversations, it is essential to have a strong desire to grow together through regular conversation.

There is an episode I would like to share with you about how much I know about things that are familiar to me.

It was about 30 years ago. When my husband (an American) studied abroad at a Japanese university for a year

He became very close to Mr. A, who was living in the same dormitory. My husband could speak Japanese to some extent, so there was no problem even if Mr. A did not speak English at all. There were several other Japanese students who became good friends, but Mr. A was so friendly that he invited my husband to his parents' house.

When they returned from the trip, my husband said to me, "A is amazing. He knows so much about his hometown. He knows about the festivals at the nearby shrine and what plants grow on the mountain behind our house. I've never met anyone who could tell me so much about the town where he was born." The person who was most respected and trusted by my foreigner husband (my husband owes his life to his scooter) was not an English department or returnee student, but A-kun, who spoke passionately about the history and geography of his hometown in Japanese only.

When communicating with foreigners, what do you talk about? What can you talk about? In most cases, the things you can talk about with the most enthusiasm and confidence are probably things you like or things around you, such as hobbies, hometown, family, and your neighborhood. In order to speak about these things in English, we must consciously prepare ourselves on a regular basis. One effective way to do this is to travel.

5. Travel Advice

I strongly recommend traveling within Japan (or where you live), and do it alone. This is to learn more about Japan (and where you live). The reason I recommend solo travel is because I want you to talk with other people wherever you go. This is not possible with a companion. Talking with local people in the

places you visit can be a simulated experience for students to communicate with strangers in a foreign country in the future. They will use the opportunity of travel to hone their conversational skills. I myself try to visit as many places as possible. (Photo taken in Nagano City, Japan, a few years ago)

In order to make a trip, I have to research about the place beforehand. If I am a railroad enthusiast, I may read a few books to find out the names of train lines and stations, and from there continue on to the history and economy of



Author in Nagano City

the area. You may be surprised to find that what you researched before visiting a place is not the same when you actually see it. Travel is an extraordinary thing, a small adventure, an exploratory study. It is a good opportunity to connect the dots of information that we usually collect separately.

We focus on learning about the native people of Iwate Prefecture such as Inazo Nitobe, Takuboku Ishikawa, and Kenji Miyazawa through field trips, and it is very effective to visit museums and their birthplaces on your own.

If possible, it would be even better if students could have the opportunity to be volunteer guides who introduce their hometown to tourists from other prefectures or overseas. If our school's forum is held face-to-face, it would be a perfect opportunity.

The number of real-life stories you can affect the persuasiveness of your conversations. If you have something to say, if you have something to convey, listeners will do their best to listen to you, even if your English is slightly incorrect or your pronunciation is difficult to comprehend. The following is a discussion of conversational enthusiasm, which has not been given much importance in English language education in Japan.

6. Conversational Enthusiasm As A Necessity for Conversation

There is a person whom I respect in terms of communication. I met a Korean man with the English name of Jason at a party in the U.S. many decades ago. When you go to a party in the U.S., it is usually the case that you talk to many people at once, rather than to one person for a long time. However, I was 9 months pregnant at the time, and it was easier for me to sit down, so I spent

more than 30 minutes talking with an American named B who happened to be sitting on the sofa with me. Then Jason came in with the first word of “Hello.” Let me be honest. When Jason entered the conversation, I thought, “Oh my God!” I felt a little depressed, thinking that I would have to spend at least 10 minutes in conversation with a guy who had just come to the U.S. to study and did not yet speak much English. Sure enough, whenever Jason didn't understand a word, he would ask “What does it mean?” He was trying to tell me how he felt about every topic, albeit slowly. The conversation between the three of us lost some of its lightness, but before long I began to look forward to what Jason would say next, waiting to see what he had to say.

In fact, what he was doing was something I had been careful not to do at parties until that moment. I had been careful not to bother other people, not to interrupt, and not to ask questions immediately even if I didn't understand something. He is fulfilling the purpose of his study abroad program, which is to learn English. He makes others wait until he is finished speaking, but he puts more effort and enthusiasm into his remarks than anyone else. Witnessing his tenacity, I thought to myself, “At this point, I speak English better than Jason, but he will soon overtake me. If other students from Korea are studying like this, Japanese learners can't win.” If Jason had continued to learn English, he might be a top executive at some American company by now, and if Japanese people could have Jason's enthusiasm for speaking English, there might one day be a J-pop artist who surpasses BTS.

7 We should not “follow”, but “lead”.

Are we enjoying conversation in our daily lives? In Japan, there is a word “ishin-denshin,” or the ability to understand without saying a word. However, in order to enjoy conversations with foreigners who do not have a culture of “ishin-denshin,” you must be able to lead the conversation by offering your own topics of conversation. For this purpose, it is necessary to make efforts to prepare “what you want to talk about and what you can talk about with confidence and be ready at any moment.”

In particular, when conversing with foreigners, each of us should be aware that we are private diplomats. While enjoying conversation with others, we should think about what we can give them as well as what we can receive from them.

However don't feel that you have to convey Japanese culture to a foreigner

all by yourself. In the beginning, you should practice small talk (talking about the weather, etc.). Yet it is not only the content of the conversation that needs to be conveyed. Through our conversation, I want to get to know you as a person. I want to have a good time with you. I want to share my thoughts with you." This is the first step in communication.

We open a window to the world with the greeting "Hello," and through that window we communicate our thoughts in English. We want to be able to explain parts of Japan to foreigners who want to know more about Japan using our own unique English, based on our personal experiences. To this end, we do not want to compare ourselves with native English speakers, but to build a relationship where we can learn from each other and from our fellow non-native English speakers around the world. Although the number of visitors is currently decreasing due to the coronavirus, many tourists from neighboring countries, such as China, Korea, Taiwan, Philippines, and Thailand visit Iwate Prefecture every year. We ought to interact more actively with these people. Let us make sure once again that English is one of the tools for this purpose and not just a subject to measure our ability as one of the subjects for an entrance examination. Otherwise, we will always end up catching up. In what ways can Japan lead the world in the future? Let us start the conversation. From this country, from this town, from this school.

"Step out into the world with great ambition." Is our school's motto.

I hope that all of the people gathered at Excelsior will watch as our school takes this step forward.

The most fruitful and natural exercise for our mind is, in my opinion, conversation.

Michel de Montaigne

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From "Learning by Teaching" to "Learning by Learning"

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ABSTRACT

"Learning by teaching", the traditional classroom method, in which, the teacher is dominant, and teachers are accustomed to teaching and students accustomed to listening to teachers. But with the implementation of the new curriculum standards, this kind of teacher's monologue class mode will be broken, when students and teachers will become the main characters in the class, according to the students' preview of lessons, the teacher arranges the participation of the students in class. This classroom mode is "teaching by learning". If we step further to try the "teaching by learning" model a little more boldly, and to further restore the status of students as learning subjects, we can ask students to arrange the student's presentation and communication according to the self-study before class. The teacher will be the trainer before class and the supervisor facilitators after class. This teaching mode is the "Learning by learning" of Zezhou No. 1 Middle School in Jincheng.

Key words

learning by teaching, teaching by learning, learning by learning

1. "Learning by Teaching"

A teacher, a book, a piece of chalk, a blackboard, and a class, which are not only all elements traditional classes may include, but also its true portrayal. In a traditional classroom, what the teacher teaches, how to arrange it, what situations to set up, what teaching aids to use, and what questions to presuppose are in the control of the teacher in the classroom. Because the time of the class is controlled by the teacher, the students basically have no opportunity to participate unless the teacher occasionally interspersed questions. Otherwise, a class would be the teacher's 'solo performance'. Although the class is finished, the teacher merely finishes the class hurriedly according to the contents pre-set with the teacher unsure how much the students have obtained. Strictly speaking, no one can teach us anything, and all knowledge, in essence, is acquired by students themselves. Teachers tend to view teaching as a process in

which students cooperate with their teachers to complete classroom tasks and lesson plans. However, to a certain extent, they neglect that students are the real subject of learning and that students are the important learning resource as a whole. At the same time, in this kind of class, teachers neglect or think little of the analysis and understanding of the students. In this way, there will be a certain difference between the starting point he/she has set for teaching and the original purpose of teaching. And many things he has explained in class may already be mastered by the students, so that students' attention in class will be scattered, occasionally leading to "Sleeping Classes", not to mention dynamic participation and productivity.

CONSTRUCTIVISM holds that learning is not a process in which the teacher simply imparts knowledge to the students, but one in which the student perceives, recognizes, thinks, and reconstructs, and one that the teacher can not replace the role of the students. In the "Learning by teaching" class, the students become the passive recipients of knowledge imparted by the teacher according to his/her experience, rather than the real subject of learning. In view of this, we should look for a path through which the status and respect of the learning subject can be restored. And this path is a classroom mode — "Teaching by learning". Since May 2009, Zezhou No. 1 middle school has had the courage to break through the traditional teaching method of "unifying the world" by teachers in the classroom, tearing down the platform, setting up the platform for the students, and promoting the teaching method of "learning and guiding spiral development big classroom", with forty minutes divided into several sections, letting the class present certain link, enhancing the students' enthusiasm and the initiative of learning, simultaneously enhancing the study efficiency as well, and more importantly, restoring the students' status as the subject of study.

2. "Teaching by Learning"

What is "Learning by teaching" ? Learning-based teaching is a kind of teaching strategy for teachers to determine the starting point, method and strategy of teaching according to learning situations. "Learning Situation" refers to the basis of students' knowledge and ability, the years of schooling , cognitive level of students, the degree of students' active preview in class, the students' emotional state towards new knowledge, etc., that is, the teacher determines the starting point of teaching according to the learning situations, chooses appropriate teaching methods and uses more practical teaching aids to stimulate

students’ thirst for knowledge, thus enabling students to learn and communicate constructively, finally achieving the aim of enabling each student to obtain certain knowledge, skills and emotional sublimation.

To some extent, “teaching by learning” restores the status of students learning as subjects, which means that teachers no longer arrange classes only according to their own past teaching experience or their own presupposition, and according to the actual situation of students, arrange the content of the class, the scene, the choice of teaching aids to organize the classroom and complete the teaching tasks. However, in the “teaching by learning” class, students and teachers are involved together, where both need to change their concept, and also try to ensure the smooth process.

As the famous Chinese educator Mr Tao Xingzhi said, “it is exciting students’ curiosity to learn instead of teaching students effectively that makes a good teacher.” So the first idea that needs to be changed in the classroom mode of “teaching by learning” is to restore the student as the subject of learning, and the teacher must change “teaching students to learn” into “guiding students to learn”, so as to truly ensure the students’ status as the subject of learning, allowing students to self-study, try, explore, discover and solve problems. Then the teacher carries on with the guidance according to the student’s self-study situation, and then constructs the content which will be presented in the class as well as arranges how to carry on with the effective questions generation and explore the solutions to the questions. Here, we find that “teaching by learning” class mode can really reflect the role of students, so to promote the curriculum reform many schools are basically using this teaching strategy and classroom mode now. From this point of view, what should be changed first is the teacher’s concept of teaching methods. In addition, there is a need for students to change the concept of self-learning. “The key to teaching lies in leading the way and enlightenment.” To open the door of students’ understanding what they learn, we must let students learn first, and then the teachers teach based on learning situation. In the self-study class, the teacher explains the teaching goals, instructs the students to study independently by thinking, reading the learning materials and taking notes, and then complete the ‘Xuedao’ (“学道”, a learning and homework system). Before the next class the teacher learns about the study situation by marking the ‘Xuedao’, after that the teacher starts to organize the class. Because of learning in the first place and finding problems after learning, students can enter the classroom with a clear goal to solve problems and puzzles

and with eagerness to learn actively. Sometimes it is even not necessary for teachers to inspire and guide students to play the role of learning as a subject. Students' potential can be fully developed. Therefore, in order to let the students become the masters of learning and make the central task of teaching fall on the level of "learning" instead of "teaching", we teachers should try to cultivate the students' sense of autonomy, let students' problems exposed in the "self-reading, self-training, self-evaluation" process. Therefore, the role of teachers lies in the targeted guidance seizing the opportunity.

Zezhou No. 1 Middle School, has been actively exploring the classroom mode of "Learning first" (student-centered learning) since the beginning of the curriculum reform. What does that mean? This can be explained in the context of the class processes in Zezhou No. 1 Middle School. Every class in Zezhou No. 1 Middle School can be divided into seven processes: Xuedao-based study, self-study session, marking and evaluating the Xuedao, group discussion, presentation in classroom, a brief summary, test and feedback on performance, and then Xuedao-based study again for the next cycle. To be specific, firstly, students learn the 'Xuedao' autonomously and independently which are handed out at the end of the last class according to requirements. The students then complete relevant exercises in the Xuedao and hand them in to the teacher. Next the teacher marks and evaluates the 'Xuedao' so that he/she knows about the learning situation and concludes the students' blind spots or puzzles. The teacher goes on with a second preparation for the new lesson, including the important points that will be discussed in groups and presented in class and the difficult points the teacher will explain and expand. Meanwhile, the teacher will arrange the process of this lesson according to the learning situation, and collect the points to be emphasized in the summary and the key points to be tested at the end of the class. Therefore, from this point of view, "teaching by learning" first highlights the precondition of students' autonomous and independent learning, and next the teacher's designs and organization of the class according to learning situation, and at last students' discussion, presentation, questioning, summary and evaluation according to the teacher's designs.

At the stage of "teaching by learning", students' status as learning subjects will be achieved to a certain extent, and students' desire to learn will also be stimulated. However, at this stage, to some extent, it is actually the teacher who is still dominating the class, which is just transformed from the former teacher's one-man show into the present teacher-student co-progress show. So, in a sense,

the teaching by learning class will not go too far, which is because the teacher will not easily give up his\her dominant role considering his\her own teaching experience and concept. Therefore, in order to restore the students’ status as learning subjects as much as possible, it is necessary to emancipate the mind and realize the transformation from “learning by teaching” to “learning by learning”.

3. “Learning by Learning”

What is “learning by learning”? First of all, we must understand that the first subject of learning is students; secondly, it should be noted that the second subject of learning is still students. In other words, students become the real learning subject, and at this stage, teachers become guides or helpers. So, how to achieve “learning by learning”?

The first step of “learning by learning” is to continue the step of “teaching by learning”, that is, the arrangement of independent self-study before class, so that students could have plenty of time to preview learning materials, consult learning materials, think about relevant problems and finish the Xuedao of this class. In this way, students have a general understanding of the content of this class, which is the pre-class preparation the “text study”. If it is a process of “problem exploration” and “expansion and improvement”, students will think, discuss, consult and feed back according to the guiding problems designed in the Xuedao in independent self-study before class, so as to form their own learning achievements and expose their existing problems at the same time. Thus, the Xuedao submitted are a true reflection of the learning results of students’ self-study class and the main approach for teachers to know about the learning situation as well. After marking the Xuedao and learn about the learning situation, teachers will prepare for the second step.

The second step is to make courseware. After mastering the learning situation, teachers can make an elaborate preparation for the learning methods and class contents according to the content. Generally speaking, a class will be accompanied by PPTs (Powerpoint), smart notebooks, videos, pictures and micro-course explanation. The use of these teaching aids can awaken and stimulate students’ thirst for knowledge to the greatest extent from the auditory and visual aspects in the classroom.

The third step is pre-class training. Teachers usually train subject spokesperson and group on duty before class. The training will cover the problems existing in the Xuedao, exploring the causes and solutions to the

problems, the key and difficult points of this class, the setting and organization of the class process, the arrangement from the students' presentations in class, the synchronized recording and solutions to problems, the evaluation and feedback from the group on duty, the use and explanation of the Xuedao in class and so on. The practical effects of the third step and the pre-class training, directly determine whether the learning task in class can be completed and whether the expected effect can be achieved. Therefore, the third step shows the uniqueness of "learning by learning". So why do teachers conduct pre-class training? This involves the latest achievement of the current curriculum reform in Zezhou No.1 Middle School, which is the "walking class" classroom mode. What is a "walking class"? "Walking class" is that a teacher takes two or three classes at the same time. According to the classroom mode, the "walking class" of Zezhou No.1 Middle School can be divided into three types: "overall perception (mind map)", "layered breakthrough (text study, problem exploration, expansion and improvement)" and "overall output". Among them, "overall perception (mind map)", "overall output" and "text study" are that teachers walk among different classrooms and students stay in unchanged classrooms assigned, while "problem exploration" and "expansion and improvement" are that both teachers and students walk. In this kind of class, the importance of pre-class training is obvious and self-evident.

The fourth step is in-class presentation. Due to the comprehensive preparation of students' pre-class independent learning and teachers' pre-class training, the class is basically the presentation and exchange of students' learning achievements. In class, the group on duty and the subject spokesperson are organized to complete a class together. The presentation in class is not deliberately arranged before class, but about the outcome report jointly discussed by students in class, or the discussion and solutions to common problems. Therefore, in the classroom, heated discussions, scenes of debates, the eyes of praise and laughter of problem solving can be found everywhere. In one class, the expected learning objectives can be basically achieved through comments in the Xuedao app, objective perception, problem preview, study group discussion, presentation in classroom, summary, test, evaluation, feedback, etc.

The fifth step is follow-up consolidation. What if problems found by students in class are not solved effectively in the absence of the teacher? At this time, the group on duty or the subject spokesperson will record the relevant information and give feedback to the teacher in time in order to ask for a timely solution,

or the generated problems will be published through the E-channel learning platform, which is a kind of network resources or learning platform, for the teachers and students to solve the problems together. Meanwhile, teachers can also upload typical examples or questions related to the class to the learning platform for students to refer to and even test independently, so as to promote the consolidation of knowledge.

In conclusion, "learning by learning" can be summarized in the following four aspects. First, the quality and quantity of students' pre-class learning determine the height of in-class presentation and communication. Second, the range of students' pre-class independent learning determines the depth of students' in-class discussion and presentation. Third, the breadth of students' pre-class data review determines the width of students' while-class discussion. Fourthly, the degree of pre-class preparation determines the while-class validity obtained by students.

Although we say that the potential of students is endless, we still do not ignore and underestimate the role of teachers. For example, the preparation of exercises, the elaborate design of problems, the pre-class training, the timely guidance of problems generated in class, the after-class follow-up counseling and problem solving, and so on, are inseparable from teachers. However, under the "learning by learning" teaching mode, the role of teachers in class has been transferred to pre-class elaborate preparation and after-class careful follow-up counseling; the workload of teachers is not reduced, but transferred to the quality of work of teachers. As a result, the role of teachers has transformed from explainers and instructors in class into pre-class reading guides, trainers and post-class supervisors. In this way, the requirements for teachers are more and higher.

The change from "learning by teaching" to "learning by learning" changes the role of teachers and students, rather than teaching basic rules or teaching approaches. Teaching and learning growing together, which means that teachers and students teach and learn from each other. What we lack now are not resources or methods, but the courage and gumption to explore resources and methods. Daring to break the convention, and forging ahead toward a totally different path while following the teaching rules and principles, have been achieved by Zezhou No.1 Middle School.

Movement in the Classroom

Alice Handscomb

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Summary

It has been widely acknowledged by educators around the world that movement in the classroom can have a positive impact on students' learning. It has even been found that sitting at a desk for a full class period can hinder student learning and engagement. In Japan, it seems that the style of teaching has, until recently, been traditionally lecture-based and teacher-oriented. However, recently, thanks to technology, classroom design and improved teaching methods, we are starting to see changes in Japan as well. It is my hope that teachers in Japan will become more familiar with methods that incorporate movement in the classroom.

Key words

Movement, engagement, gesture, motion, energise, focus, performance, behaviour, role-play, skit, play, comprehension, participation, technique, method

From my experience of being educated in the UK, and with eleven years of teaching experience in Japan, I have seen numerous effective teaching styles, many of which use movement. I intend to introduce some of the teaching methods that I have observed and applied in my own lessons and consider their effectiveness and what kind of impact these have on students.

I will discuss five reasons that movement in the classroom is effective and give some examples and techniques that we as teachers can apply in our lessons.

1. Movement energises students' bodies and their brains

According to research by Chaouloff (Chaouloff F., 1989), moving our bodies may stimulate the production of brain chemicals norepinephrine and dopamine, which energise and elevate mood. Of course, in school, playing sports and taking part in physical education classes are of great importance, but even in the classroom there are ways that we can implement movement.

One way that I use movement in the classroom to energise students is by playing the game "rock-paper-scissors" before beginning an activity. Not only

is it a “fair” way of deciding who goes first, but it is also a simple and fun way to get students moving their bodies and interacting with their classmates. Another way to wake up students at the end of a long day is to ask them to stand up for activities.

These are just two examples of ways we can use movement to energise students in the classroom. Short, simple ideas such as these can improve students’ moods without impacting too much on the length of the lesson.

2.Movement improves students’ behaviour

I have often observed that junior high school students in particular have a lot of energy and many students find it hard to sit at a desk and stay focused during lessons. There is even scientific evidence that young people are especially susceptible to restlessness, and they need to move because of “fluctuations in basal metabolism” (Wiles and Bondi, 2007).

At first, I was frustrated that the teaching methods I had previously been using in high school or adult classes didn’t seem to be working in junior high school and I couldn’t understand why students wouldn’t behave well in my classes. However, I soon realised that “bad” behaviour was often due to lack of focus, and rather than wishing that the students would calm down, I should be finding ways to allow students to move more during lessons. This in turn would improve students’ behaviour during classes.

I have introduced activities in my lessons that allow students to move more. Instead of having students sat at their desks doing a vocabulary or spelling test, I prefer to make the activity a board race. Students take turns coming up to the whiteboard to write the words. Taking the time to do games and races rather than have students just sitting at their desks helps them to remain focused on activities, so behaviour is generally better.

3.Movement helps students to retain content more

Recently, many studies have shown a relationship between actions, gestures, and exercise and memory performance. It has been found that physical movements can affect our ability to remember. In one study by Cohen (Cohen R.L., 1981), participants were tested on their ability to recall actions. It found that it was easier for them to recall “self-performed” actions rather than simply hearing or reading instructions for the actions without them being performed.

In my English lessons I use gestures and actions to help students to

remember key vocabulary and phrases. These activities are easy to adapt according to students' levels. For example, I have used animal gestures in a warm-up activity to help junior high school students to remember animal names. I have also used gesture games at high school level to teach students the difference between "play", "practice," or "go" when talking about sports. Performing skits or plays is another way to aid students' memories when they are learning key phrases. Learning lines for a play goes hand in hand with their actions and movement around the stage, so it is easier for them to remember them.

4.Movement helps teachers to gauge participation and assess students

Movement and physical responses are also a useful way to monitor students' participation in class, which can be of benefit to the teacher. There are simple ways this can be implemented in the classroom. For example, when asking students to do a pair-work activity, I often ask them to stand up, and only sit down once they have finished it. By doing this, it is easy for me to know which students have finished, how long the activity takes, and which students are struggling and may need some assistance.

Another way is to use movement to check comprehension. Students can move their bodies in a "true or false" quiz by making a "true" or "false" gesture with their arms. I also often ask students simple "yes/no" questions that they can respond to physically simply by raising their hands.

5.Movement is fun

Above all, I believe that lessons at school should be fun. In a study to ask students if they enjoy lessons more when there is movement, it was found that "students overwhelmingly described movement in the classroom as fun" and "better than the boring way of learning!" (McMullen, Kullina and Cothran, 2014) I'm sure that if you ask your own students the same question, you will get the same kind of response. So, if you are looking for ways to make lessons more fun, why not integrate movement into your classroom and include activities that students enjoy.

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Some ideas to get your students engaged and to have fun and promote creative thinking in the classroom

Claire Neeson

(Psychology teacher, Impington Village College, Cambridge, UK)

Summary

For the first few minutes of a lesson make the focus ‘Change your Perspective’. Ask your students to carry out the following few simple tasks with the emphasis on ‘change and how it makes you feel’:

1a the Crossed Arms Challenge:

For practitioners facing a large class and not a lot of time, this exercise really gets the point of change across. After the introduction of the “change” subject, ask the students to “cross their arms.” My operational definition of “crossed” is folding their arms together, as if they were bored or waiting for something. Once they have completed this task, ask them to “cross their arms the other way,” reversed of what they just performed. I guarantee that 90 percent of the class will struggle with it.

Discussion Questions:

- How did it feel when you were asked to cross your arms the other way?
- Did it come naturally or did you have to stop and think about it?
- Were you comfortable with doing this differently from your normal process?
- What are some things that make people resistant to change?

Teacher Notes

When people cross their arms, they do so naturally, without even thinking about it. When they are asked to fold them the other way they, for the most part, stop, refold their arms again and then try to figure out which arm was on top, which arm moves first and so on. Try this yourself and see. Encourage participants to consider and share their own personal emotions related to making changes.

1b Change How You Communicate

Ask the students to find a partner – someone they don't know very well. Half of the class are asked to sit either on the floor or a chair back-to-back with their partner. The other half are asked to sit on their hands.

The students are then asked to take it in turns (no more than one minute each) to tell each other about a really good holiday they went or about a surprising or exciting event from their lives.

Discussion Questions:

- * How did it feel to speak to someone in this way?
- * What was it like not being able to see/use your hands?
- * What other skills did you have to use to facilitate the conversation?

1c Did you see the gorilla?

Short youtube clip:

<https://www.youtube.com/watch?v=vJG698U2Mvo>

which is focused on seeing but not seeing ie not seeing the whole picture and only concentrating on what you think is important.

2 Verbal ping-pong – in pairs. Choose a topic e.g. 'food' – one person starts by naming anything to do with food e.g. 'sushi', 'restaurant', 'hungry', 'apple' etc. Their partner must immediately return with another word about food (like they are returning in a game of ping-pong). The rules are:

- * no hesitating, each word must be returned immediately
- * keep looking into your partner's eyes, no looking up, down, away etc.
- * no laughing!
- * no repeating words which have already been said

The winner is the first person to have defeated their partner 3 times.

This game can be used to introduce or review key topics being studied in class. It's lots of fun, the students really enjoy it.

3 Relay race. This game will require a large whiteboard at the front of the class and marker pens.

Choose a topic (to introduce a new theme or review prior learning).

The students are in 2 teams. Each team lines up behind the lead student, facing the board; the lead student holds a marker pen. On the teacher's count

of 'Go!' each lead student runs to the board and writes down one word/phrase associated with the topic. They then run back to their team, pass the marker on and the next student does the same – this continues until the teacher yells 'Stop!'. The rules are:

- *the same word cannot be repeated per team
- * words must be correct i.e. related to the topic
- * spelling doesn't matter
- * no copying from the other team (at least try not to get found out if you do copy!)

The winning team is the one who has the highest number of correct words/phrases at the end of the game.

4Speed-dating – students in role as one of the topics/studies/theories they have researched – they 'date' each other in a speed-dating scenario. They must prepare their notes and they have 1 minute per dating opportunity to tell their partner about themselves and to find out about them. At the end they should have a good set of notes gathered from each person they've 'dated'.

5 Get in Line as a way to establish the level of agreement with the topic that has been researched. The teacher asks the students to line up across the room according to how far they agree with the statement, 'Spanish/Italian/Japanese food is the best in the world' for example. The teacher can select topics that are relevant to the students' current level/themes etc. This can then form the start of discussion on the topic.

There are so many ways you can breathe life into your lessons and really get the students engaged. Hopefully you will use some of these silly-but-useful games in your lessons to really enhance the experience of both you, the teacher, and your students.

Working with local communities based on geographical considerations

YOZA Hiroaki

(Vice principal, Geography Teacher, Morioka Chuo High School, Morioka City, Iwate, Japan)

Summary

The reality of university entrance exam preparation is a barrier to developing international understanding based on the goals set out by geography classes. As a step towards achieving the goals, I first promoted various initiatives in the context of extra-curricular club activities and area studies clubs. These initiatives achieved a certain degree of success, but the question is how to apply and develop them in regular classes in the future.

Key words

Problem-finding and problem-solving skills, initiative and proactivity, publicness and ethics, sense of responsibility and mission, spirit of challenge, teamwork and leadership, cooperativeness and flexibility

1. Introduction

In today's globalised world, a major challenge is how to put the goal of geography education into practice in actual educational settings. This goal is to “develop human resources who have a comprehensive understanding of diverse geographical issues and who can participate in community development with a sense of attachment to their local area”^{*1}. During my previous tenure at Okinawa Shogaku High School, I aimed to shift from a teaching style that mainly focused on preparation for university entrance exams. Following what is called international understanding education, students identify local issues on their own, think of solutions and put them into practice. In the process, they collaborate with the local community and, based on a sense of belonging to the local community, develop a sense of responsibility and mission, initiative and positivity, an intrepid spirit, cooperation and flexibility^{*2}.

2. methodology

There are significant time and technological constraints on visiting local communities to address the above issues during class time. We have been

tackling this issue with the students through extracurricular club activity and regional studies club, which is engaged in research and practice of local communities. Since studying the transition of social life in Naha City based on geographical considerations through maps and field surveys. This led to the theme of revitalising the shopping streets in the city centre that have lost their liveliness of the old days. The project proceeded as follows.

1. research into the history and function of shopping streets
2. survey of the current state of shopping streets
3. interviews with shopping street associations, NPOs, government and businesses
4. developing an action plan to formulate and test methods (hypotheses) for revitalisation
5. implementation of the action plan
6. modification and implementation of the action plan based on practical results.
7. summary and dissemination of a series of activities

3. Background to the initiative

According to the Guidelines for Senior High School Teaching, the objectives of Senior High School Geography B are “to examine the geographical events of the modern world systematically; to examine various regions of the modern world geographically with historical background; to develop geographical awareness of the modern world; to cultivate geographical views and ideas; and to develop awareness and qualities as Japanese citizens who live independently in the international community. It is stated that”³. While geographical study is a method of analyzing and comprehensively understanding various events based on the region, systematic geographical study is a way of thinking in which causal relationships and geographical features are systematised by geographical field for study and research. However, it is undeniable that in actual educational settings, more emphasis is placed on preparation for university entrance examinations than on achieving this goal. Many teachers are faced with a dilemma. The more they focus on preparation for entrance examinations, the more they diverge from what they should be teaching. When I was in my thirties, I was sent to Argentina by JICA, where I struggled to develop the values, worldview and qualities needed to live in a global society as I encountered cross-cultural barriers. My aim was to share these experiences with my students and plant the seeds of a global human

resource in the classroom. Unfortunately, however, I was unable to break away from the knowledge-oriented teaching in regular classes due to the horizontal class curriculum for all classes and the limited number of class hours. Eventually, as a step towards realising the ideals I was aiming for, I decided to form an extra-curricular club and put them into practice there.

In February 2000, I set up the Okinawa Shogaku High School Regional and International Exchange Club (later renamed the Regional Studies Club) and engaged in a variety of activities under the theme of 'Resolving local and international social issues from the perspective of high school students living in Okinawa'. As the club's advisor, my three roles were (1) to provide students with ideas, (2) to provide opportunities and (3) to encourage activities. The Community Studies Club has been involved in confronting the local and global challenges of society.

It was a great discovery that the initiatives of high school students could gain the understanding and support of the local community. These activities also seemed to have greater news value than expected. They were often covered extensively in the media. However, the most significant achievement, in my opinion, was the significant change I saw in the students who took part in the project. The students became aware of their inherent potential, turned their attention to society and developed the qualities of global human resources mentioned above. It was a change beyond my initial expectations and one that surprised everyone around me, including parents, teachers and friends. The students developed an awareness of the geography of the modern world by examining geographical events systematically and geographically in the context of the historical background of the region. In addition, they cultivated geographical views and ideas, and developed an awareness as Japanese citizens who live independently in an international society^{*3}. This was a major clue towards achieving the goal set out in the upper secondary school teaching guidelines.

4. 'Machimodoshi' activities - participating in community development while developing problem-finding and problem-solving skills

The efforts of the Regional Studies club produced certain educational results. However, the process of participating in actual community development in the process of formulating hypotheses for solutions through research and learning, and practicing and verifying them on their own was not sufficient in the previous

activities. Therefore, we sought to improve this process and to link it to another goal of modern geographical education: developing human resources capable of making independent regional development with the participation of local residents and developing area management and policy decisions that make use of regional resources such as nature, history, culture and products*4.

In 2018, one group from the Regional Studies club launched ‘Machi-modoshi’ activities. These are activities to restore the liveliness of the old days to the central shopping street of Naha City the prefectural capital of Okinawa, also known as Machigwah. As seen in Figures 1 to 3, the topography and urban area of Naha City have changed over time. In addition, a map of tram routes that ran in Naha City until around 1930 led to a realization of the fact that the city centre had shifted between the pre-war and post-war periods. Until around the 1980s, Machigwah was crowded with shoppers from inside and outside the city as it acted as the kitchen of the common people.

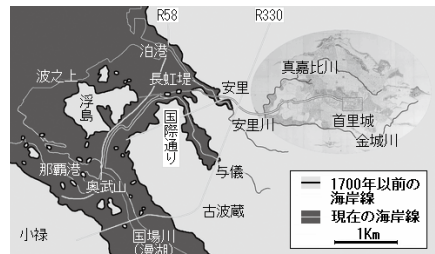


Figure 1: Naha City in the 17th century



Figure 2 Topographic map of Naha City in 1921



Figure 3: Present-day Naha City and prewar streetcar route map

Inside the circle is the central area.

Machigwa originally arose spontaneously and unplanned, and along the maze of streets that spread out like a meshwork, there were restaurants serving local cuisine, food and delicatessen shops, clothing shops, daily-use shops, and shops that had been built under US military rule.

Shops selling imported goods from Western countries and neighbouring countries, hamburger fast-food outlets, ethnic instrument and costume shops, souvenir shops, and more spread out in disorder, creating an exotic atmosphere not seen anywhere else in the country. However, with the progress of motorisation, the consumption behaviour of the general public transformed towards a focus on roadside and suburban speciality shops and large supermarkets. As a result, shopping streets, which were at the heart of the consumption behaviour of the common people, declined. Such a nationwide trend became noticeable in Machigwa from around the 1980s.

Machigwa, which used to be the kitchen of the common people, was

then forced to shift its target to tourists who came in large numbers from all over Japan and abroad. As a result, the unique atmosphere of Machiggwa has gradually faded away, and the common people have become more and more distant. Furthermore, “local urban centres with historic townscapes are unable to cope with motorisation and are in decline... Japan's regions have become uniform and homogenised, and there is a uniform ‘fast climate’ across the country that has nothing to do with unique regional characteristics”^{*5}. This wave of transformation came undeniably to Naha City as well. Fast climate is a phenomenon in which a wave of suburbanisation is sweeping into the countryside, homogenising the landscape of Japan and causing the loss of regional uniqueness.

The students who worked on the Machigwa town restoration activities, to bring back the old liveliness to Machigwa naturally had no knowledge of the old liveliness of Machigwa, or the role it had played in the past. We started with a historic study based on geographical considerations. In addition to research using literature and the internet, they visited Machigwa and interviewed the shopping street association, shop owners and NPOs working to revitalise Machigwa. They then conducted a survey of the current situation in Machigwa, including the products handled by the shops, the characteristics of the customer base, the age groups of passers-by and the ratio of local customers to tourists. Based on these literature and field surveys, they decided that (1) they would convey the historical attractions of Machiggwa to young people and children, and revitalise Machiggwa through them, and (2) they would revitalise Machiggwa as a place that is loved by both local customers and tourists, rather than relying solely on tourists. With the theme of the project developed, the following hypotheses were then formulated.

1. If the customers of Machigwa are heavily weighted towards tourists, the survival of the business is at risk should tourists stop coming for some unforeseen reason. Therefore, local customers must be attracted back.
2. The key to the revival of Machigwa is the younger generation of elementary, junior high and high school students. Let them experience the charm of Machigwa and make them regular visitors, so that they will bring their parents to visit. This will lead to the development of a new customer base of young housewives.
3. By bringing young people to Machiggwa and making it a place for them, the whole Machiggwa community can look after and educate them, thereby reviving the community's educational power. This will resolve the problem of

children isolated and deprived of food due to poverty, and the decline in the educational function of families and communities. This is a challenge that is manifested by the fragile economic situation and complex social conditions caused by Okinawa's geographical remoteness and insularity.

4. Local residents can deepen communication with each other by revisiting Machigwa, and develop civic pride, the attachment, pride and sense of responsibility towards a region.
5. If the above hypotheses become reality, Machigwa can be further developed as a shopping area loved by both local residents and tourists.

Literature studies on the revitalisation of shopping streets, as well as model shopping streets for regeneration formed the basis of the above hypotheses. These include 'Showa no Machi Shinmachi Dori Shopping Street' (Bungotakada City, Oita Prefecture) and 'Mizuki Shigeru Road' (Sakaiminato City, Tottori Prefecture), and field research in 'Okinawa City Ichibangai' (Okinawa City, Okinawa Prefecture), an anti-thematic and inconsistent town development project that lacked the above hypotheses.

In particular, "the town was a stage deeply involved in one's development, a place where, through living and playing, one could acquire the rules of association with children and adults, learn the framework of the culture and participate in it." ^{*6} "What is needed is the concept of 'town education' instead of 'food education'. 'Street education' is the idea of promoting healthy child rearing through life in the city." ^{*7} "In the past, there were candy shops and stationery shops in both Tokyo and the provinces. By hanging out and shopping in such shops every day, one can naturally learn attachment to the local area, independence, how to greet people and how to communicate." ^{*8} "If the residents' living time, living space and values are shared or organically linked, and if communication is close, the local community is stable."⁹ The learning from the literature was very useful. The next step was to create an actual action plan based on the hypothesis. The students narrowed down the target group to primary schools students and planned and implemented a 'Machigwah Exploration Guide by Niinii and Nei Nei' ('Niiiii' means elder brother in Okinawan dialect and 'Nei Nei' means elder sister) to tell the charms and episodes of Machigwah. With the cooperation of the shopping street association, shopkeepers, NPOs and neighbouring children's centres, the following six steps were taken.

1. preliminary course planning and request for cooperation from shops

2. pre-workshop with participating primary school children
3. preliminary guiding exercises
4. prior publicity through the shopping street association, local newspapers and local FM stations, and requests for media coverage; 5. the actual guide, which incorporates food tastings and a quiz-style stamp rally.
5. the guide's full production, incorporating tastings and a quiz-style stamp rally.
6. post-learning by asking the participating primary school children to draw a picture on the theme of a shop they would like to see in Machigwa, in order to impress on their minds the impression of Machigwa.

After implementing the plan, the students felt a solid response from the children, shopkeepers, NPOs and the media. However, they also realised that the town revival plan targeting primary school children did not immediately lead to the hypothesised results. Many shopkeepers smiled and cheered the students' efforts, but they did not seem to take the hypothetical revival seriously, i.e. that local customers would actually return to the shopping streets, leading to an increase in income. The need for a long and continuous effort to test the hypotheses was keenly felt. Rather than thinking about the future, shopkeepers are desperate to survive in the present. "Phrases such as 'a town where hearts are in harmony' are irresponsible and 'pretty words'. If you don't make money, you can only decline. History has proven this".^{*10} These words struck a chord with the students, and it was an even greater achievement that they learned a great deal from them.

Based on the results and reflections of the project, the town revival activities were continued and developed as follows. (1) Collaborating with shopkeepers to set up stalls at local events, and simulating how to attract young people as customers based on the customers they attract and the sales they make. (2) Participate in local forums and workshops to deepen their learning and disseminate their community revitalisation activities. (3) Re-implement the 'Machigwah exploration guide by Nii Nii and Nii Nii' by extending the circle of sympathy to high school students from other schools, and if the customers of Machigwah are heavily weighted towards tourists due to the Corona disaster from 2020, their survival will be threatened when the number of tourists stops for some reason. Concerns were unintentionally realised. Although the town revival activities had to be suspended due to the Corona disaster, they have since been passed on from senior to junior members of the community, and are now

approaching the five-year anniversary of the start of the project.

5. Conclusion.

The response to the Machimomodoro project has been strong, with the activities being reported on many times in the media, and the project receiving grants from Naha City and local businesses, as well as prizes in various competitions. Through these hands-on learning experiences, the students had the opportunity to work with local residents, members of the local administration and parliament, businesses and various organisations, and gained a great asset in the form of a sense of responsibility to the local community and the experience of proactively participating in community building. The significance of the activities will gain even more weight in the future due to the Corona disaster.

In addition, I also evaluate that the following major steps have been taken.

- Develop human resources who can comprehensively understand diverse geographical issues and participate in regional development with a sense of attachment to the region.*¹
- Cultivation of qualities required of global human resources, such as a sense of responsibility and mission, initiative and proactivity, a challenging spirit, and cooperativeness and flexibility.*²
- Achievement of the goals of geographical education, such as “a broad range of liberal arts and deep expertise, problem-finding and problem-solving skills, teamwork and leadership, a sense of publicity and ethics, and media literacy.”*¹¹

On the other hand, we believe that the following two points that we still face are major issues that we must continue to explore and address as geography teachers.

1. there is a danger that collaborative learning with the local community may become transitory and half-hearted as students move on and graduate. The goal of fostering a sense of independence and responsibility for community building could conversely become an irresponsible one that inconveniences the local community. We must seek to create continuous and responsible initiatives to prevent this from happening.
2. the fact that the Machimoshi activities were able to achieve a certain level of success was largely due to the fact that they were based on extra-curricular club activities and involved a relatively small number of people. The time and technical constraints that would have to be overcome in order to universalise

such a method for all students in the school classroom are significant. We must face this challenge without looking away and continue to explore how to develop geography lessons as they should be.

In April 2022, I assumed the position of vice principal at Morioka Chuo High School. As I am fascinated by the rich natural climate, history, and culture of Iwate, I am also beginning to see the regional issues that Iwate faces. Based on my experience at Okinawa Shogaku, I am looking forward to tackling the regional issues in the field of education in Iwate. In the process, I would like to pass on to our school's faculty and staff the spirit of co-operation between the school and the local community.

References

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Fig. 1 'Coastline before 1700' (Rare Materials Digital Archive, Okinawa Prefectural Library).

Fig. 2 'Topographic map of Naha City 1/50,000 of 1921' (GSI).

Figure 3: 'Okinawa Electric Railway Route Map' (archive UG2-Home Page).

Project-based learning driven by scientific inquiry activities

—The improvement of water absorption and water loss experiment of plant cells—

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Summary

This experiment teaching is based on project-based learning and using the mode of the general process of inquiry experiment, “raise a question -make an assumption - design an experiment - experiment implementation - draw a conclusion - summary and exchange”. By creating a living situation, this subject what is driven by the string of questions is divided into three small experiments. It innovated in three aspects These are in different experimental materials, different concentration of sucrose solution, different external solution solute selection. The students who completed the experiment by themselves felt the perm selectivity of protoplasm layer, and they felt the structure matching with function. Initially they formed the concept of life and environment adaptation. Then, they possessed certain experimental operation ability, exploration ability, scientific thinking ability. It can help us achieved the expected experimental results and the expected teaching objectives.

Key words

Project-based learning, Problem-driven, Scientific inquiry, Plasmolysis, Deplasmolysis

Background

Problem-driven teaching is based on constructivism teaching theory and based on the teaching content, a series of interlocking questions are designed in the context to drive students to acquire new knowledge and know how knowledge is generated in the process of thinking and solving problems in the process of inquiry activities [1,2]. “Water absorption and Water loss of Plant cells” is the content of chapter 4, Section 1 of compulsory 1: Molecules and Cells of high school biology for human Education edition. As an exploratory experiment, this experiment aims to enable students to master the general steps of exploratory experiment, and to design experiments and conduct experimental

operations by themselves. At the same time, in the experiment, the students felt the function of the membrane to control the entry and exit of substances, and realized the functional characteristics of membrane selective permeability, laying a solid foundation for the subsequent study of the trans-membrane transport mode of substances. This paper takes “Plant cell water absorption and water loss experiment is improved” as an example, based on project learning, through question driving and learning in doing, the students can experience the general activities of scientific inquiry.

1. Project Cause

Before this experiment, students have learned about osmosis, water absorption and water loss of animal cells. Plant wilting is also common in real life. The student is still not clear about the principle of absorbing water and losing water of plant cell. Does it have the same principle as animal cells? Students need to explore further. This topic carries out inquiry activities in the form of project learning to answer doubts, and further improves students' core literacy while

experiencing general activities of scientific inquiry. The learning objectives of this inquiry activity are as follows:

1.1 Scientific thinking: The students used a digital microscope to observe the different plant water uptake and water loss phenomenon, preliminary learn to microscopic observation, records, statistical experiment method. The students can analyze the structure of plant cell suction filtration basis and conditions, interpret the relationship between cytoplasm wall separation and restoration and the selective absorption of different substances by the protoplasmic layer.

1.2 Scientific inquiry: The students could learn the general steps of cooperative inquiry, develop certain scientific inquiry ability, make reasonable assumptions on the questions raised, provide evidence for demonstration, and try to experience the work of scientists.

1.3 Life concept: The students could experience selection permeability of the protoplasmic layer and comprehend the life concept of the adaptability of structure and function, and the adaptability of organisms to the environment.

1.4 Social responsibility: It is necessary to have responsibility to explain biological laws in production and life by applying the knowledge of water

absorption and water loss of plant cells through osmosis.

2. Projects design

The focus of this topic is to clarify the principle of plant cell water absorption and water loss, that is, plant cell protoplasm layer is equivalent to a semi-permeable membrane, the elasticity of protoplasm layer is larger than the cell wall, when there is a difference in concentration on both sides of the protoplasm layer, the cell will have osmosis water absorption or water loss. The difficulty is to experience the general process of scientific inquiry. In order to better master the general steps of scientific inquiry, this project is divided into three small experiments that are gradually in-depth and interlocking:

In experiment 1, the students investigated the conditions of water absorption and water loss in plant cells. By observing the outer epidermis cells of onion purple scaly leaves, the inner epidermis cells of onion scaly leaves and hibiscus flower petal cells (the darker part of the petal base was selected in Figure 1), which were placed in 0.3g/ml sucrose solution, they analyze and summarize the

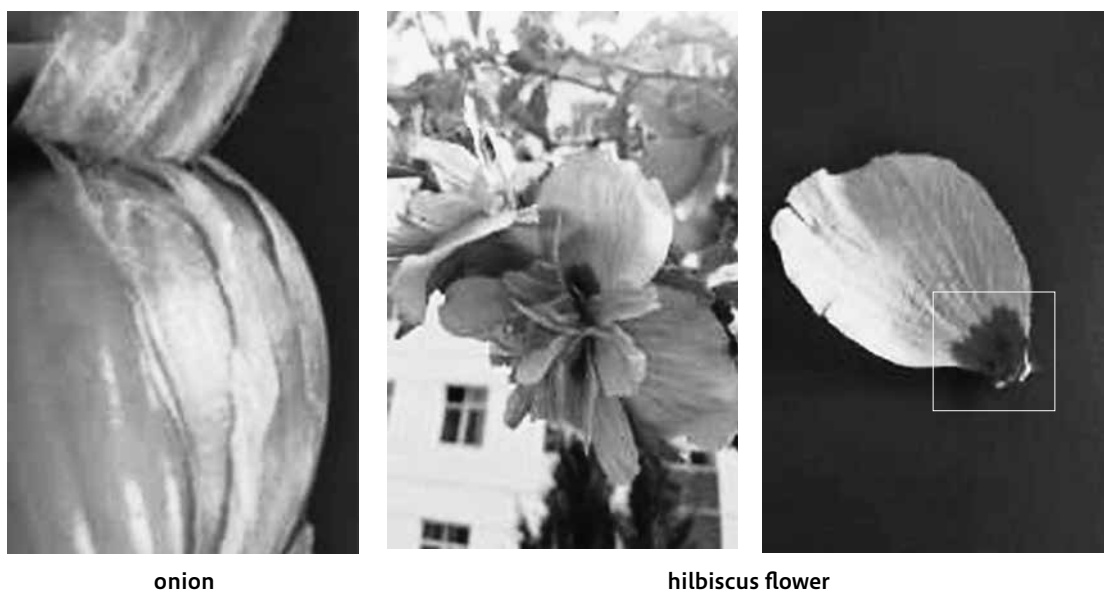


Figure 1. The selected parts of the red square of the onion And hibiscus flower petals are the materials for temporary slide.

structural basis and conditions of water absorption and water loss of plant cells. Moreover, it is inferred from this experiment that not only onion epidermis cells can be used to observe the phenomenon of plasma wall separation, but also onion inner epidermis cells and hibiscus petal cells and other mature plant cells can be observed.

In experiment 2, the concentration of the external solution was investigated. Students had questions about the selection of sucrose concentration in Experiment 1. Why did they choose 0.3g/ ml sucrose solution? The students think that we need to design a series of concentration gradient to explore, but choose a concentration gradient, our students through the literature, to determine the 0.1g/ml, 0.2g/ml, 0.3g/ml, 0.4g/ml, 0.5g/ml, 0.6g/ml six concentration gradient[3]. By observing the changes in the size of central vacuole and the position of protoplasmic layer, students found that the degree of cytoplasmic wall separation of Hibiscus petals increased with the increase of external concentration. When the concentration exceeds a certain level, the dehydration is excessive, and death occurs.

In experiment 3, the effects of different external solutions on the separation and restoration of the plasma wall of the same plant cell were investigated. Plant cells were placed in 0.05g/ ml sodium chloride solution and 0.045g/ ml potassium nitrate solution respectively [2], and the automatic recovery of plant cytoplasmic wall after separation was observed. The students were guided to analyze and compare the selective absorption of different small molecule substances by the protoplasmic layer, so as to better explain the selective permeability of the protoplasmic layer.

3. Project implementation

This topic is carried out in accordance with the general process of experimental inquiry (asking questions, making hypotheses, designing experiments, implementing experiments, drawing conclusions and summarizing and communicating). There are six to eight students in a explore activities group.

3.1 Task 1

We explore the conditions under which water absorption and loss occur in plant cells.

Situational import

Wilted leaves were soaked in clean water, and they will soon become stiff. When the cabbage is chopped into a filling, salt is often added, and after a while you will see the water oozing out.

People put too much fertilizer into the soil will cause wilting of seedlings. These phenomena explain, plant cells also resemble animal cells, can produce

bibulous or lose water phenomenon. The phenomenon of bibulous or lose water is concerned with the concentration of solution of the outside world likewise.

Ask questions

What are the structural basis and conditions for water absorption and loss in plant cells?

Hypothesis

Mature plant cells have a large central vacuole, and the protoplasmic layer is composed of vacuole membrane and cytoplasm in the middle. Both vacuole membrane and cell membrane are selective permeable, so we make the hypothesis: protoplasm layer is equivalent to a semi-permeable

membrane, when protoplasm layer on both sides of the existence of concentration difference, plant cells can produce osmotic action bibulous or water loss [4].

Design experiment

We innovated the experimental materials. At this time, it was the season of hibiscus flower opening. Students immediately thought of hibiscus petal cells as experimental materials. Through preview, the material selected is the outer epidermal cells of purple onion scaly leaves, then can the inner epidermal cells be used as experimental materials in this experiment? Therefore, we finally decided to use the outer epidermal cells of purple onion scales leaves, white inner epidermal cells of purple onion and hibiscus petal cells (the darker part of petal base was selected for Figure 1) in three experimental groups. The external solution was 0.3g/ ml sucrose solution, and the experimental process followed our teaching materials.

Experiment implementation

Students first prepared the experimental materials, including fresh Onions and freshly picked hibiscus flower petals, and prepared 0.3g/ ml sucrose solution and 0.3g/ ml sucrose solution with red ink (Figure 2A, B). We got tweezers, blades, slides, cover slides, water, red ink.

Specific experimental steps

First, we selected fresh onion scale leaves and hibiscus petals, used a blade to draw a square on the outer epidermis of onion scale leaves, the inner epidermis and the base of hibiscus flower petals, and teared off the epidermis with tweezers. The students putted a drop of water on a clean slide.

The students putted the torn skin in water drops to flatten it, covered it with a cover glass, and made into three kinds of temporary slide: purple onion scales Leaf epidermal cell , purple onion white inner epidermal cell and hibiscus petals cell .

Second, the size of the central vacuole of the cells (Figure. 2C) and the location of the protoplasmic layer were observed under a low power microscope.

Third, sucrose solution was dropped from one side of the cover glass (0.3g/ml sucrose solution with red ink was used for the external solution of the white inner epidermal cell group of purple onion), and drainage was carried out with absorbent paper on the other side of the cover glass. Repeat this a few times and the plant cells soak in the sucrose solution.

Fourth, a low-power microscope was used to observe whether the central vacuole of the cell became smaller, where the protoplasm layer was located, and whether the cell size changed.

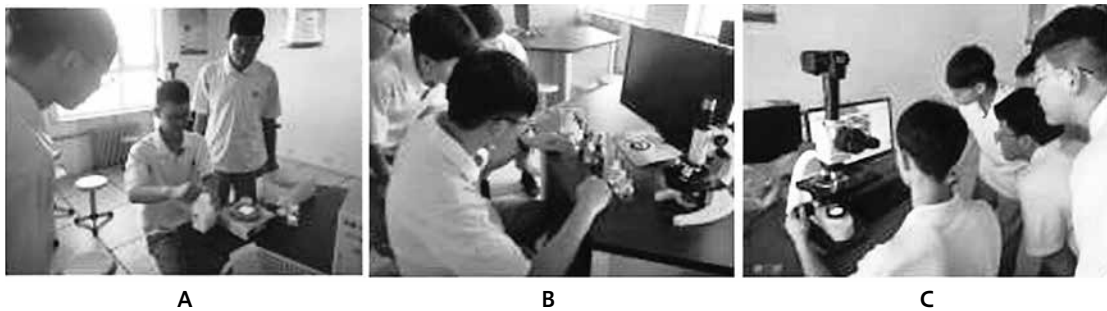


Figure 2
A, Students weigh experimental drugs; B, Students prepare reagents for the experiment. C, Students use a digital microscope to observe and record experimental phenomena.

Fifth, drip water from one side of the cover glass and drain with absorbent paper on the other side of the cover glass. Repeat this a few times and the plant cells soak in the clean water.

Sixth, the students observed with low power microscope whether the central vacuole of the cell gradually becomes larger, and where the protoplasm layer is, whether the cell size changes.

Communication of experimental results (Figure. 3)

The students recorded the observed experimental phenomena in real time and accurately with digital microscope and made PPT for group communication.

Drawing a conclusion:

The protoplasm layer is equivalent to a semi-permeable membrane, through which water molecules can pass but sucrose molecules cannot. When there is a difference in concentration between the two sides of the protoplasm layer, mature plant cells can absorb water and lose water.

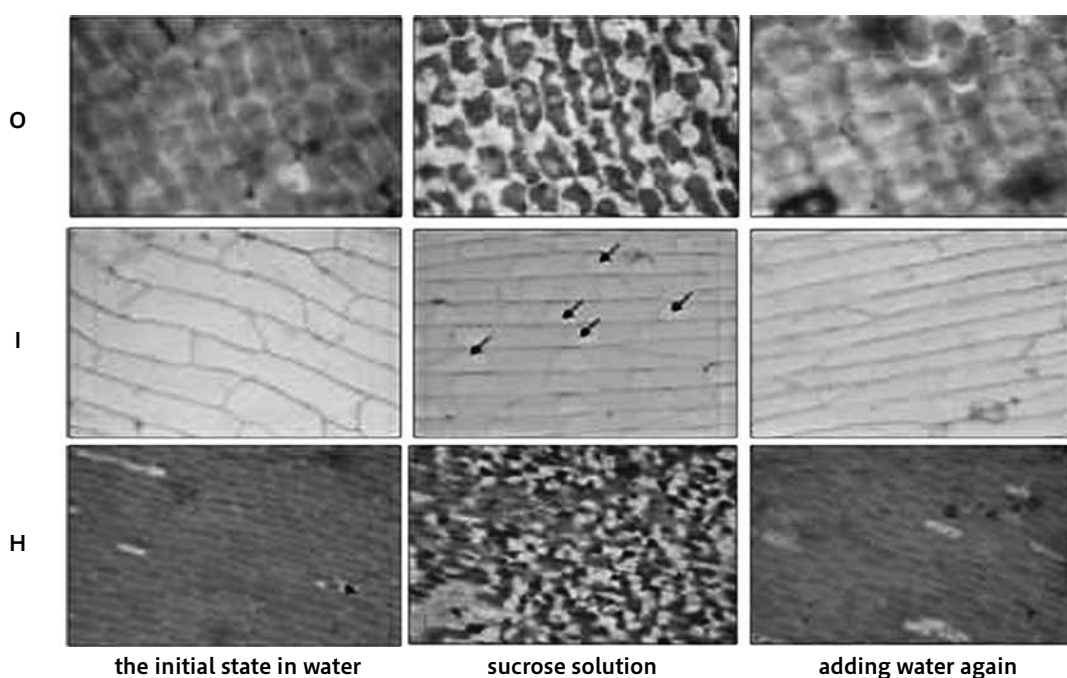


Figure 3. Experiment I The plasmolysis and de-plasmolysis phenomenon of different plant cells. (The arrow indicates the reduced protoplast after plasmowall separation.) The first line is to observe the infiltration of water absorption and water loss of the outer epidermal cells of purple onion (O). In the first line on the left picture, it is observed that the protoplasm layer is close to the cell wall and the central vacuole is filled with water. In the middle figure in the first row, when the external solution was 0.3g/ml sucrose solution, it was observed that plasmolysis occurred in the outer epidermal cells of onion, the protoplasm layer was far away from the cell wall, and the large vacuole in the center decreased in volume and deepened in color. In the figure on the right of the first row, sucrose solution was washed away by drainage method, and the outer epidermal cells of onion were soaked in clean water again. It was observed that the protoplasm layer gradually approached the cell wall, and the large vacuole in the center became larger and lighter in color, and the phenomenon of plasmolysis and de-plasmolysis occurred. The second line was the result of purple onion white inner epidermal cell and hibiscus petals cell (I). The third row was the result of hibiscus petals cell group (H). we can conclude the same results as the purple onion epidermal cells. It is when the solution is 0.3g/ml of sucrose solution, cell plasmolysis phenomenon happens (the picture in the middle of the second line and the third line). The sucrose solution was washed by drainage and the cells were infiltrated in clean water again. It was observed that the protoplasmic layer gradually approached the cell wall, and the large central vacuole gradually became larger and lighter in color, resulting in plasmolysis and de-plasmolysis (the picture on the right of the second line and the third line).

3.2 Task 2

Explore the concentration of external solution for plasmolysis and deplasmolysis.

Ask questions

Students learned from Experiment 1 that the concentration difference between the two sides of the protoplasm layer is one of the conditions for water absorption and water loss of plant cells. Why was the concentration of sucrose selected 0.3g/ml in Experiment 1? In experiment 1, students found that hibiscus petal cells were easy to extract and plasmolysis time was fast, and the experimental phenomenon was obvious. Therefore, we decided to select hibiscus petal cells for the next experiment. The students had new questions. What are the effects of different concentration of sucrose solution on water absorption and water loss of hibiscus petal cells?

Hypothesis

We know that the concentration difference between the two sides of the semi-permeable membrane determines the degree of water absorption and water loss of cells, so we hypothesized that different concentrations of sucrose solution would have different effects on hibiscus petal cells and the degree of plasmolysis.

Design experiment

By consulting the literature, we determined the concentration of sucrose solution to six groups, with 0.1g/ml, 0.2g/ml, 0.3g/ml, 0.4g/ml, 0.5g/ml, and 0.6g/ml [3].

Implementation of the experiment

Specific steps are shown in the following table (Table 1).

Table 1 Specific steps of the experiment 2

1. Making temporary slide of hibiscus petal cells	1	2	3	4	5	6
2. The size of the central vacuole and the location of the protoplasmic layer were observed under a low power microscope.						
3. Sucrose solution was added by drainage method (g/ml)	0.1	0.2	0.3	0.4	0.5	0.6
4. Low power microscope was used to observe whether the central vacuole of the cell gradually became smaller, where the protoplast layer was located and whether the cell size changed.						
5. Drainage method dripping water.						
6. Low power microscope was used to observe whether the central vacuole of the cell gradually became bigger, where the protoplast layer was located and whether the cell size changed.						

Communication of experimental results (Figure 4A,4B)

The students recorded the observed experimental phenomena in real time and accurately with digital microscope and made PPT for group communication.

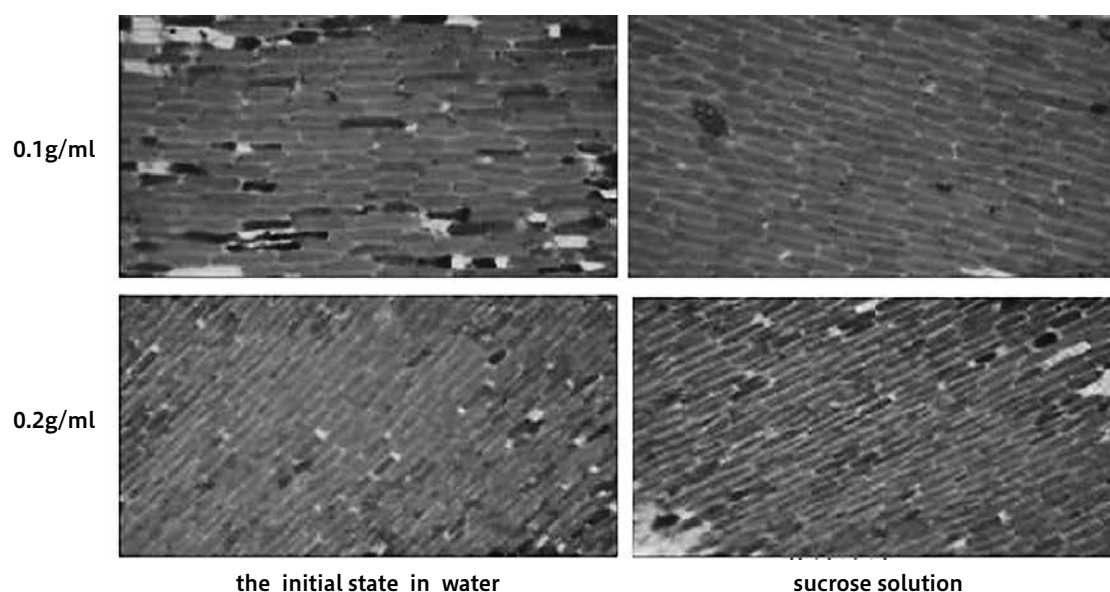


Figure 4 An Effect of sucrose solution at low concentration on plasmolysis of Hibiscus petal cells. In the first row of the left picture is the initial state of the cells, and the right figure shows no plasmolysis of the cells when the external solution is 0.1g/ mL sucrose solution under low magnification. In the second group, the initial state of the cells was shown on the left, and the plasmolysis did not occur in hibiscus petal cells under low magnification when the external solution was 0.2g/ ml sucrose solution on the right.

Drawing a conclusion

The degree of plasmolysis of hibiscus petal cells increased with the increase of the concentration of external solution. When the concentration of external

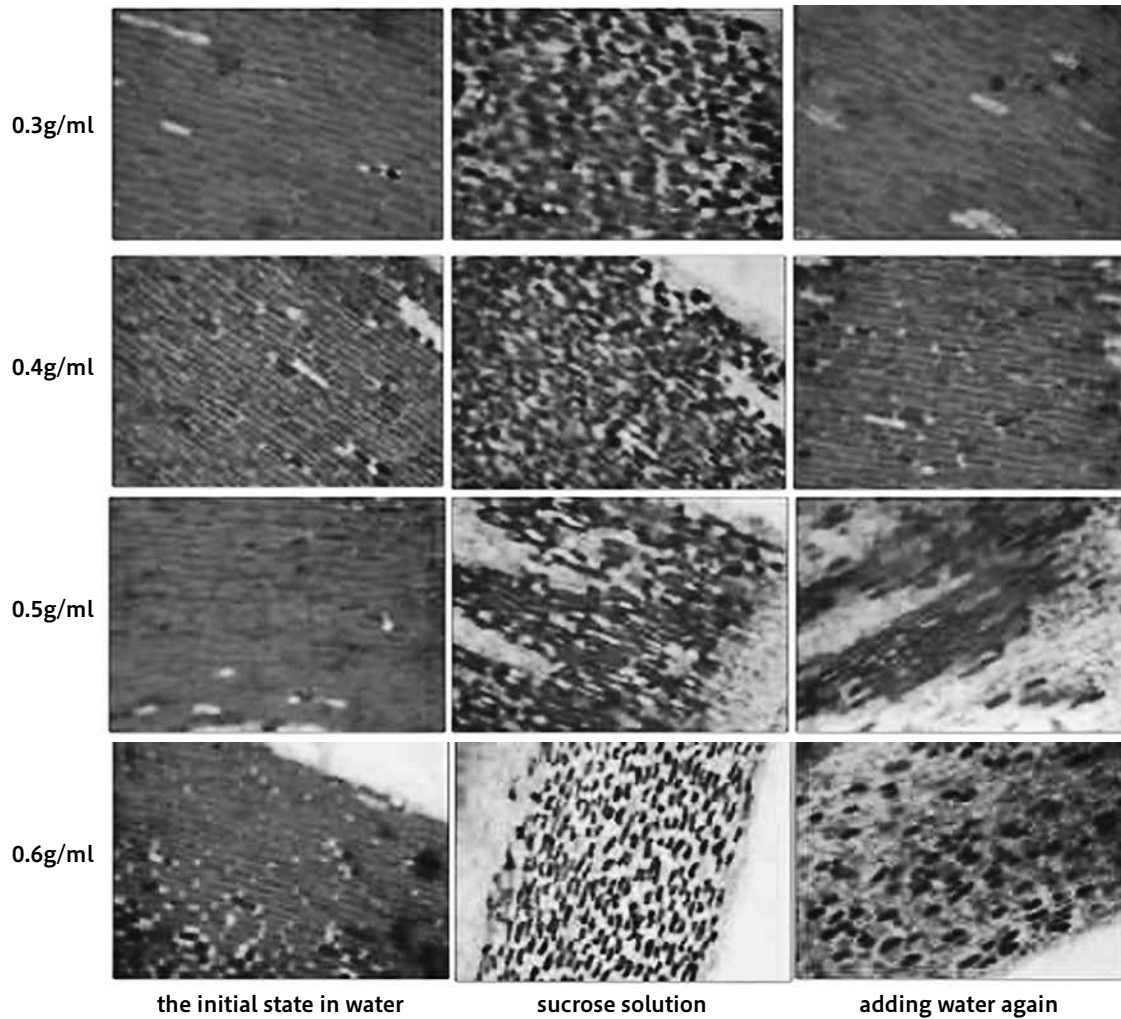


Figure 4 B Effect of sucrose solution with high concentration on plasmolysis of Hibiscus petal cells. In the first row (0.3g/ml sucrose solution group), the second low (0.4g/ml sucrose solution group) and the third low (0.5g/ml sucrose solution group), we obtained consistent experimental results, except that the plasmolysis time was different. on the left pictures: initial state of hibiscus petals cells; In the middle pictures, when the external solution was sucrose solution, the plasma layer of hibiscus petal cells was far away from the cell wall, the volume of the central vacuole was reduced, the color was deepened, and the phenomenon of plasmolysis occurred. In the right picture, sucrose solution was washed away and hibiscus petal cells were infiltrated in clean water again. It was observed that the protoplasmic layer gradually approached the cell wall, the volume of the central vacuole gradually increased, and the color became lighter. Plasmolysis and de-plasmolysis occurred when the sucrose solution was 0.3g/ml, 0.4g/ml and 0.5g/ml. The fourth was the result of 0.6g/ml sucrose solution group. In the middle figure, the plasmolysis occurred when the external solution was 0.6g/ml sucrose solution. But in the picture on the right, the sucrose solution was washed away by clean water, and the hibiscus petals cells were infiltrated in clean water again. The cells died due to excessive water loss, and no de-plasmolysis occurred.

solution exceeded a certain concentration, excessive water loss of hibiscus petal cells resulted in death.

3.3 Task 3

Explore the influence of different external solutions on the plasmolysis and de-plasmolysis of the same plant cell.

Ask questions

The first two experiments have concluded that water molecules can pass through the plasma layer, while sucrose molecules cannot, in order to better feel the selective permeability of the plasma layer. By looking at the literature and asking the question, when the external solution is sodium chloride solution or potassium nitrate solution, what is the difference in the experimental results?

Hypothesis

Because of the selective permeability of the protoplasmic layer, it is hypothesized that different kinds of solutions have different effects on the separation and restoration of the plasma wall of the same plant cell.

Design experiment

The experiment is divided into two groups, the first group with the experimental material is onion epidermis cells, the second group with hibiscus petal cells, respectively, each group is divided into three experimental groups: the first, the external solution is 0.3g/mL sucrose solution, the second, the external solution is 0.05g/mL potassium nitrate solution, the third, the external solution is 0.045g/ml. The concentration of sodium chloride solution and potassium nitrate solution was selected by referring to the literature [4], and the osmotic pressure of sucrose solution was equivalent to 0.3g/mL The specific steps were as follows.

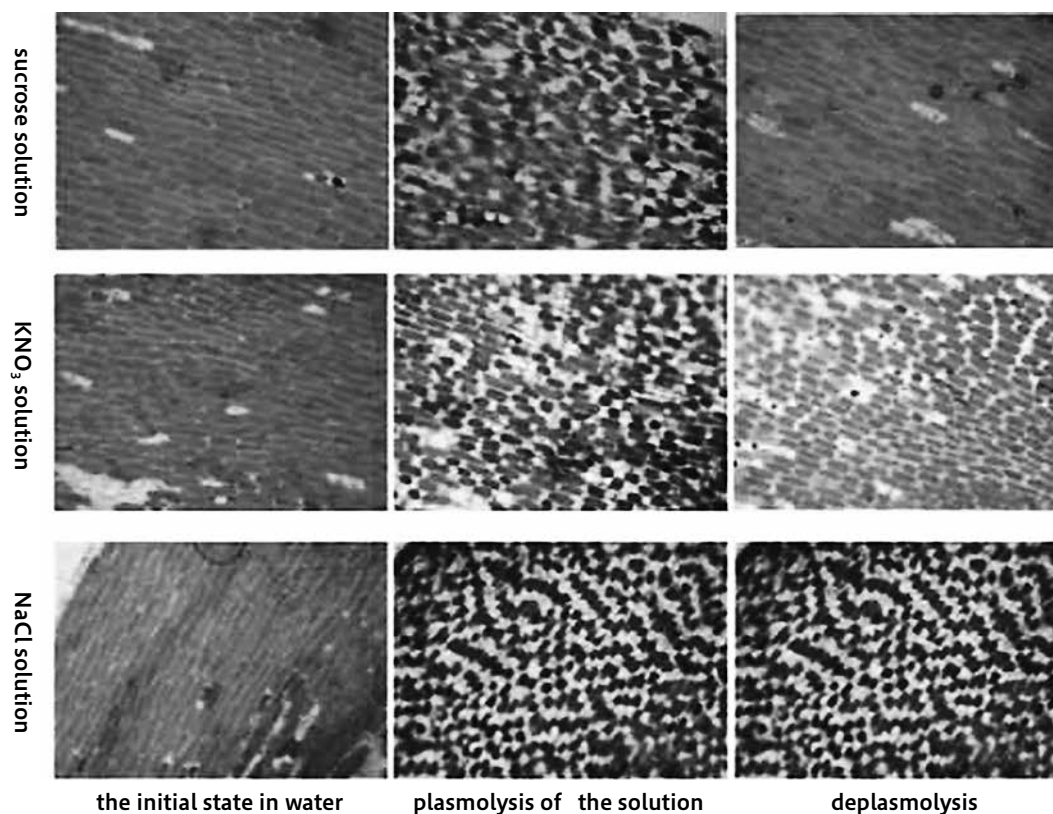
Implementation of the experiment (Table 2)

Table 2 Specific steps of the experiment 3

1.Making temporary slide	Hibiscus petal cells			Epidermal cells of onion scaly leaves		
	1	2	3	4	5	6
2.The size of the central vacuole and the location of the protoplasmic layer were observed under a low power microscope.						
3.Drop the external solution	0.3g/ml sucrose solutions	0.045g/ml KNO ₃ solutions	0.05g/ml NaCl solutions	0.3g/ml sucrose solutions	0.045g/ml KNO ₃ solutions	0.05g/ml NaCl solutions
4.Low power microscope was used to observe whether the central vacuole of the cell gradually became smaller, where the protoplast layer was located and whether the cell size changed.						
5.Drainage method dripping water	+	-	-	+	-	-
6.Low power microscope was used to observe whether the central vacuole of the cell gradually became bigger, where the protoplast layer was located and whether the cell size changed.						

Communication of experimental results:(Figure 5A ,5B)

The students recorded the observed experimental phenomena in real time and accurately with digital microscope and made PPT for group communication.



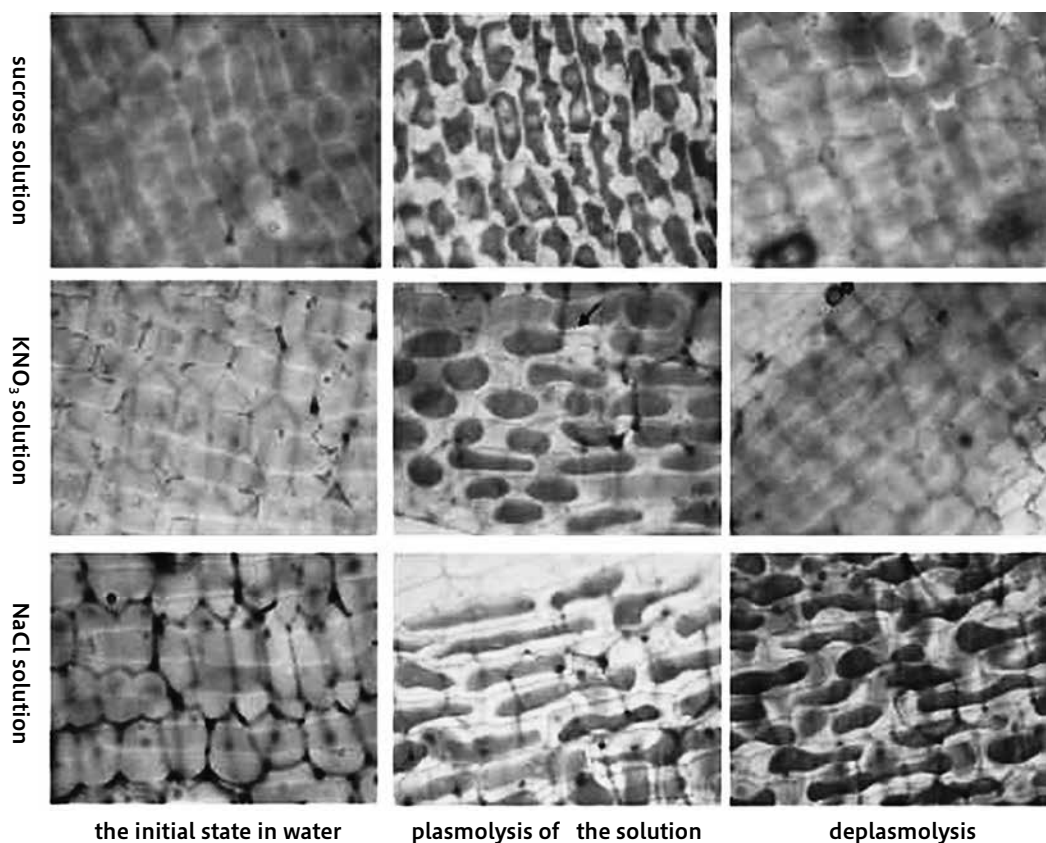


Figure 5A Effects of different solutions on the plasmolysis and de-plasmolysis of the outer epidermis cells of purple onion. The first line was 0.3g/mL sucrose solution. The initial state of the cells was on the left. In the middle figure, the plasmolysis occurred in cells observed under low magnification. In the picture on the right, the sucrose solution was washed away by drainage method, and the cells were infiltrated in clean water again and the de-plasmolysis appeared. The results of plasmolysis and de-plasmolysis were observed in the second line of 0.045g/ml KNO₃ solution group. The initial state of cells was observed in the left picture. In the middle figure, the cells had the phenomenon of plasmolysis observed at low magnification. The figure on the right shows the results of the 0.045g/ml KNO₃ solution group with automatic recovery after waiting for a period of time. The third is the result of 0.05g/ml NaCl solution group, the initial cells in the left picture; In the middle figure, the phenomenon of plasmolysis occurred in the cells observed at low magnification. The image on the right shows that automatic recovery did not occur after waiting a long time.

Figure. 5B Effects of different solutions on plasmolysis and de-plasmolysis of Hibiscus petal cells. The first group was treated with 0.3g/mL sucrose solution. The initial state of the cells was shown on the left. In the middle figure, the plasmolysis occurred in the cells observed at low magnification. In the right picture, sucrose solution was washed away by drainage method, and the cells were infiltrated again in clear water and the de-plasmolysis appeared. The results of plasmolysis and de-plasmolysis were observed in the second line of 0.045g/ml KNO₃ solution group. The initial state of the cells was observed in the left picture. In the middle figure, the cells had the phenomenon of plasmolysis observed at low magnification. The figure on the right shows the results of the 0.045g/ml KNO₃ solution group with automatic recovery after waiting for a period of time. The third is the result of 0.05g/ml NaCl solution group, the initial state of the cells in the left picture; In the middle figure, the phenomenon of plasmolysis occurred in the cells observed at low magnification. The image on the right shows that automatic recovery did not occur after waiting a long time.

Drawing a conclusion:

Hibiscus petal cells and onion purple epidermis cells selectively absorb water

molecules, potassium ions, nitrate ions and other small molecules, but do not absorb sucrose molecules, sodium ions, chloride ions. When the external solution is potassium nitrate solution, the mass wall separation will occur automatic recovery. When the external solution is sucrose solution and sodium chloride solution, it will not automatically recover.

4. Project reflection

From the point of the whole project learning process, from the choice of projects, to drive sexual problems appeared in the process of the project, and to solve the problem through inquiry activity, are made by students to explore actively, active learning project learning inspired the students' innovation ability.

4.1 In the process of project learning, inspire students' thinking collision, the emergence of new problems, and in different experimental material. In addition, problem-driven teaching design was used to carry out project learning. A series of questions were set up. Question 1: What is the structural basis and conditions of water absorption and water loss in plant cells? Through experiment 1, students realized the conditions and physiological basis of water absorption and loss of plant cells and raised a new question: why the concentration of sucrose in experiment 1 was 0.3g/ml? What are the effects of different concentration of sucrose solution on water absorption and water loss of hibiscus petal cells? Two experience through the experiment the hibiscus petals cytoplasm wall separation degree varies with the increased with increasing solution concentration, when the solution concentration exceeds a certain concentration, excessive water loss and death. The first two experiments have concluded that the water molecules can pass the protoplasm layer, and cane sugar molecules cannot pass, in order to further choice through the sexual feelings protoplasm layer Question 3: when the external solution is sodium chloride solution or potassium nitrate solution, then what is the difference in the experimental results? In addition, the project learning of Experiment iii and II is the best way to reflect the literacy of biology subject.

4.2 It is also an extremely important accomplishment for students to develop the aesthetic ability of innovation and practice in the core literacy system, and the ability to combine information technology and intelligent technology with subjects, and project learning has great advantages in these aspects[5,6]. In the project implementation process, the students by using digital microscope to observe the phenomenon of water absorption and water loss of plant cell,

learned to use the application of intelligent technology in this discipline in the form of project results can be varied, with image class

PPT small paper experiment report Interpretation of that class, etc. (Figure6).

4.3 Three project study is to explore the effective way to promote the ability and problem-solving ability. In the study of this project, students actively seek solutions to the problems raised through the general steps of scientific inquiry, implement teaching objectives in the process of acquiring new knowledge, and improve their scientific

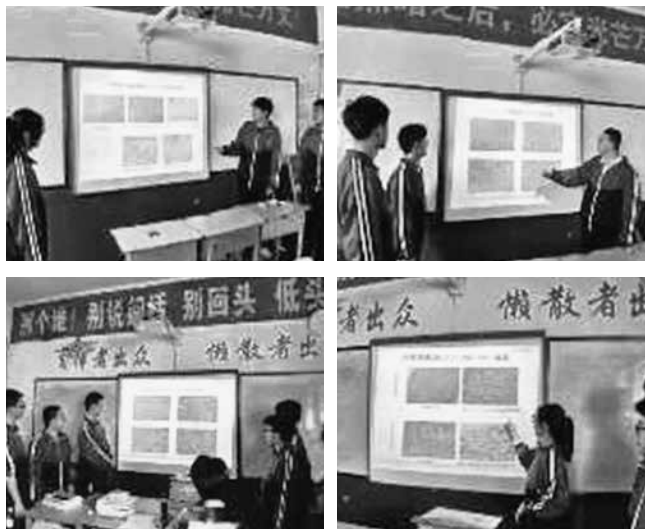


Figure.6 The students recorded the observed experimental phenomena in real time

thinking of analyzing and summarizing knowledge and their ability to solve various problems. The teaching design scheme using driving questions can effectively mobilize students' learning enthusiasm[7]. Project-based learning with driving problems can enhance students' innovation ability and form students' motivation and interest in scientific inquiry activities. New knowledge is discovered, absorbed and applied in the process of solving problems[8].

4.4 Meanwhile, project learning has also brought changes to the traditional biology classroom: the characteristics of the subject have changed from simple and abstract basic to comprehensive and vivid inquiry[9]. The status of students changes from passive acceptance to active learning [10]. The role of students has changed from learning by themselves to learning in a group; Students' learning mode changed from listening to the teacher to independent inquiry; The purpose of students changes from mastering knowledge to solving problems; Students' thinking changes from simple and limited to innovative and divergent [11].

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Submission Rules

Submissions are welcome from administrators and teachers in educational institutions!

Contact: info@chuo-hs.jp

(1) Teachers submitting manuscripts to the Excelsior Journal (hereafter referred to as the Journal) must belong to Morioka Chuo Senior High School, its affiliated junior high schools, or one of its cooperating schools in Japan or sister schools overseas. However, with the approval of the Editorial Board, teachers affiliated with other schools may be allowed to submit manuscripts.

(2) Manuscripts for submission must be unpublished. The submission period is four months from January 1 to April 30 each year. However, the outline of the theme and tentative title should be submitted to the Editorial Committee (preferably by March 31) after confirming the author's intention to submit.

(3) Manuscripts for submission should be in A4 size, horizontally written, 40 characters × 36 lines (about 1440 characters for Japanese or 430 words for English) per page, and only manuscripts prepared using Microsoft Word will be accepted. The font type should be MS Mincho for Japanese and the font size should be 10.5. Titles should be in font 16 and headings in font 12. (See page 3 for an example.)

1. Title: The title should be written in English or Japanese, and should be concise and easy to understand.

2. Overall structure: The structure should follow the following format: *

Introduction (where the problem lies)/purpose and background of the survey

Methodology/ Basic procedures (design, sample, case, experiment or observation and analysis)

If previous research has been reviewed, it should be noted here.

Conclusion (Conclusions and Issues) / Results and conclusions of the study (if applicable, specific data and their statistical significance), future issues, etc.

References

3. Key words: 5 to 10 key words should be included. Keywords and terms that are internationally accepted in the field of education should be used to express

concepts and content.

4. Structure of the article: Definition of the problem or topic under investigation, theoretical background, design and methodology, description of results, explanation of findings, conclusions, limitations of the study, and future prospects.

5. Graphs and tables: There should be numbered consecutively and inserted in the correct place within the body of the article.

The layout should be easy to read and not distorted.

6. References should be included at the end of the article. Authors are responsible for the authenticity of citations.

(4) The content of manuscripts to be submitted should be based on the practice of global education. For example, based on teachers' own social action and educational experiences in cooperation and development, or experiences and ideas for raising awareness of both students and citizens about global education (development education, human rights education, sustainability education, peace and conflict prevention education, intercultural education, citizenship education, values education, etc.). Research, cross-cutting studies, and innovative/creative ideas for improving social rights, the quality of education and its environment (e.g., international relations, integrated education, curriculum reform, teacher training, etc.) are also welcome.

(5) The number of manuscripts to be submitted should be limited to a minimum of four and a maximum of six pages, using the format described in 3) above, including all figures, tables, reference lists, etc.

(6) As a rule, the Editorial Committee will provide feedback on submitted manuscripts within one month after peer review. For each manuscript, the Editorial Board will appoint two Editorial Board members. If there are comments on the content, or requests for revisions or additional items, authors should make additional revisions and submit the manuscript by the deadline.

Submission deadline April 30th

Review feedback due May 31st

Deadline for resubmission of final manuscript June 30th

(7) Authors should use the format specified by the Editorial Committee when writing manuscripts for submission. If authors change the font, font size, or other layout, it may be adjusted at the editing stage for overall uniformity. The same applies if the number of pages exceeds the limit. Submitted manuscripts will not be returned.

(8) All contents of submitted manuscripts should be the authors' original contents. The source of any quotations, including figures, tables, photographs, etc., should be clearly indicated. The content of the submitted manuscript must be truthful. If the submitted manuscript is published in the journal, permission is granted to reuse parts of the article for non-profit activities (e.g., conference presentations).

(9) Manuscripts submitted in English will be translated into Japanese by the Editorial Board. Similarly, articles submitted in Japanese will be translated into English.

(10) (1) to (9) of the submission rules may be discussed and revised by the editorial committee as necessary.

Main title (Title should be no more than 20 words)

- Sub-title - (if any)

Full name (full name, with the space between the first and last name)

(name of country/school/position/subject)

Summary

Please provide a summary of your manuscript in this section, approximately 3 to 6 lines in length.

Keywords

Ability to find and solve problems, initiative and proactivity, public spiritedness and sense of ethics, sense of responsibility and sense of mission, sense of teamwork and leadership, cooperativeness and flexibility

Introduction

In today's increasingly globalized society^{*1}, the goal of geography education, “to develop human resources who can comprehensively understand diverse geographical issues and participate in community development with a sense of attachment to the local community,” is being pursued in actual education at

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References

*1 “Interim Summary of the Council for the Promotion of Global Human Resource Development” (Ministry of Education, Culture, Sports, Science and Technology)

POSTSCRIPTS

It was a very enjoyable experience to be the first to read the papers written by teachers from around the world about their efforts in the field. They were all powerful essays that brought to mind the conditions in the classrooms and the ingenuity of the teachers. I was struck by some of the most powerful papers.

I am sure that teachers around the world who are struggling day in and day out will find this journal very helpful, thinking, “There is such a way of doing things,” or “I didn't know there were teachers who went this far.” I feel very honored to have been involved in the compilation of this refreshing journal. Thank you very much for this opportunity.

KAN Akira
Reviewer
Employee of a U.S. company

Manuscripts of global education practices from teachers around the world have been gathered here. As a young man myself, I wanted to become a teacher.

I was a young aspiring teacher myself, so I was able to review the manuscripts with the utmost respect and great interest, as if I were there myself. Each manuscript is filled with the teachers' passion for education, and I can sense the essence of nurturing the next generation to become well-rounded individuals and that of global human resources. Unfortunately, conflicts are surfacing in today's international society, but we “believe in a bright future” of mutual respect. This is how teachers and students are practicing “contribution to the international community” based on mutual trust. We sincerely hope that many teachers will read this journal manuscript and further expand the circle of this activity.

KANAOKA Masahiro
Reviewer
Full Member of the Japan Association for Global Competency Education

I would like to thank you for this wonderful opportunity that I, as an employee of a company, have been given. To be honest, I was worried about how I could contribute to the project since I am far from the field of education. However, when I read the submitted papers, I was thrilled to see the enthusiasm and ingenuity of teachers in the field, regardless of nationality. Although I continue to have some concerns about how we could contribute to the project, I would be very happy if our comments as reviewers, who are a little removed from the field of education, could contribute something, such as a new perspective, to the teachers in the field. Thank you very much for this valuable opportunity.

KUROKAWA Hiroki

Reviewer

Employee of a private company

I would like to draw your attention to the year 9 years from now, which is the year 2031. The year 2031 will mark a transitional point for our school in the education of international understanding, global education, and the achievement of the 17 goals of the SDGs, which will transform the future of the earth. The year 2031 will be a transitional point for our school. This is the year in which we will publish the 10th anniversary issue of our magazine, which is sure to age well. We look forward with anticipation to perusing the contents of the manuscripts that will appear in this issue. It is sure to be full of practical articles that will attract the attention of mindful educators around the world.

This inaugural issue was born from the enthusiasm, sincerity, and thoughtfulness of President Masami Tatsuzawa. I am pleased, together with all concerned parties and readers, that the Tatsuzawa-ism of independent, enterprising, and diligent study is now being transmitted to the world in this form.

We sincerely hope that the contents of this magazine will continue to be enriched and developed in the future.

KAWAMURA Haruki

Editorial Committee

Adviser, Tatsuzawa Education Group Headquarters

Morioka Chuo High School has been publishing *Excelsior* for more than 20 years as a record of international education. The exchange with our international sister schools has been a major topic of this publication, but due to the recent restrictions on international exchange caused by COVID-19, we have been unable to continue our exchange activities as before.

Until now, education for international understanding has often been viewed from the perspective of students, but when viewed from the perspective of teachers, a different aspect emerges. As I learned about the thinking of those involved in education in various countries, I realized once again that the future of the Earth depends largely on education.

I would like to express my gratitude to all those who were involved in the completion of this project.

KUMAKURA Hideki
Editorial Committee
Head of Teachers, Morioka Chuo High School

We want to share our “learning” with everyone in the world. This is the wish of those of us involved in editing the *Journal*. Despite the differences in environment, traditions, and culture, children are our future. And exposure to different values is a driving force for diversity.

Looking back on 2022 in hindsight, it may be a turning point in time. As the world continues to battle the new coronavirus, interactions are temporarily cut off, and it becomes more difficult to tolerate others. I now realize that it is more necessary than ever to firmly communicate our thoughts and listen to what others have to say.

We have received tremendous support from everyone around the world in 2011. I am truly grateful. I would be happy if I can repay that favor in any way by sharing this “learning” with you. To all the authors who generously offered their “learning” practices. Thank you very much.

ABE Yoshitaka
Editorial Committee
Head of Teachers, Morioka Chuo Junior High School



Mt. IWATE



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