

Okayama Prefectural Tsuyama High School

SSH Project

Fourth Annual U.S.A. Science Camp



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3/4 San Francisco  
California Academy of Sciencesにて、  
研究員による英語講義に臨む生徒達



3/4 San Francisco  
California Academy of Sciencesにて、  
施設屋上で環境問題に関するディスカッション



3/4 San Francisco  
California Academy of Sciencesにて、  
研究室見学と研究者による講義



3/6 Massachusetts Institute of Technology(MIT)  
大学キャンパスでの、大学生院生による講義。



3/6 Massachusetts Institute of Technology(MIT)  
大学キャンパスで、大学生にインタビュー。  
事前作成したアンケートを実施。



3/6 Massachusetts Institute of Technology(MIT)  
ロボティクスに関する様々な研究と技術応用について講義。



3/6 Massachusetts Institute of Technology(MIT)  
ロボティクスに関する様々な研究と医療への応用  
について講義。



3/7 Harvard University Medical School  
歯学部の実験室等を訪問し、研究内容やラボを  
見学。



3/7 Harvard University Medical School



3/9 NASA Goddard Space Flight Center  
次期宇宙望遠鏡であるジェイムス・ウェブ  
宇宙望遠鏡について説明。



3/9 NASA Goddard Space Flight Center  
センター所長による講義とディスカッション。



3/9 NASA Goddard Space Flight Center  
次期宇宙望遠鏡であるジェイムス・ウェブ  
宇宙望遠鏡製造工場見学。



3/8 Smithsonian National Air & Space Museum

航空宇宙に関する展示について、事前学習で調査した内容を見学。



3/9 Smithsonian National Museum of Natural History

化石や鉱物など膨大な展示について、事前学習で調査した内容を見学。



事前学習(GSO)  
Hemsley先生



事前学習(GSO)  
Ursula先生



事前学習(GSO)



報告会(GSO)

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# I 研修の概要

## 1. 目的

本校 SSH の研究開発課題である，自然科学研究をリードするグローバル人材の育成に向け，海外に出向き，世界でのトップレベルの大学において研究者・学生との交流を行う。また世界トップレベルの研究機関・研修施設において本物に触れることで，自然科学研究に対する意識を高揚し，国際的な視野を広げさせるとともに科学的コミュニケーションの実践能力を育成する。これらを通して研究者になるための明確な目的意識を育てる。

## 2. 研修先

アメリカ合衆国

サンフランシスコ …カリフォルニア アカデミー オブ サイエンス  
ボストン …ハーバード大学， マサチューセッツ工科大学 (MIT)  
ワシントン D.C. …スミソニアン国立自然史博物館・国立航空宇宙博物館，  
NASA ゴダード宇宙飛行センター

## 3. 参加者

2年生選抜生徒 16名 (男子 10名，女子 6名) および 引率教員 2名

生徒 2年生 理数科 近藤 葵 産本 龍 馬場 敬大 早瀬 大貴  
宗川 彰毅

普通科 芦田 晴香 石原 和弥 内田 充紀 小川 航  
野上 晴菜 早瀬 雄大 藤井 省伍 藤田 花  
森田 陽果莉 森長 海斗 安井 万葉

引率 浮田 圭一郎 (海外研修委員長・英語) 國定 義憲 (SSH 推進室・生物)

## 4. 事前学習・事後学習

- ・事前学習：1学期中間考査終了後より，毎週1回実施。  
月1回は岡山県のGSO事業による外国人指導者4名による指導を行う。
- ・事後学習：レポート作成，プレゼンテーション作成，および全校生徒への発表を行う。

## 5. 日程

平成29年3月4日(土)～3月11日(土) 6泊8日

月日 (曜)	地名	現地時刻	実施内容
3/4 (土)	学校発	12:30	貸切バスにて関西空港へ (車内にて昼食)
	関西国際空港着	16:00	
	関西国際空港発	18:20	UA034 空路にて出国 (機内食，機中泊) (日付変更線通過)
	サンフランシスコ着	11:05	サンフランシスコ国際空港着 入国手続き・昼食後，専用車にて移動

		13:00 16:15 18:00 20:00	California Academy of Sciences 研修 施設見学, 研究員による講義と交流 専用車にて移動, ホテル・ウィットコム着 市内にて夕食 研修のまとめ  サンフランシスコ市内泊
3/5 (日)	サンフランシスコ発 ボストン 着	5:45 8:30 16:55 19:00 21:00	ホテル発, 専用車にて空港へ (空港にて朝食) UA768 空路にてボストンへ ボストン空港着 専用車にてホテルへ ホテル・バックミンスター着, 市内にて夕食 ミーティング  ボストン市内泊
3/6 (月)	ボストン	7:00 9:30  13:00  17:15 17:30 19:00	朝食後, ホテル発 (地下鉄にて) MIT 訪問 ・ C.Furukawa 研究員(Mathematical Economics) 講義, 研究室見学, 交流, 研修のまとめ ・ 学内にて昼食 MIT ロボティクス見学 機械工学部訪問、研究室見学および講義、交流 アンケート調査実施 ホテル・バックミンスター着 夕食 (市内にて) ミーティング  ボストン市内泊
3/7 (火)	ボストン	7:00 9:30 12:00 13:00 17:00 19:00 20:00	朝食後, ホテル発 (地下鉄にて) ハーバード大学ロングウッド校着 講義聴講 昼食 (市内にて)  ハーバード大学ロングウッド校 見学 提携病院訪問・研究室見学および講義, 交流 ハーバード大学ロングウッド校発 (地下鉄にて) 夕食 (市内にて) ホテル・バックミンスター着 研修のまとめ  ボストン市内泊
3/8 (水)	ボストン ボストン 発 ワシントン着	7:00 9:44 11:30 13:00	ホテル発 専用車でボストン空港へ (空港にて朝食) UA525 空路ワシントンへ ワシントン着, 空港にて昼食後, 専用車にてホテルへ ホテル・ホリデイインキャピトル着, スミソニアンへ (徒歩)



		13:30	スミソニアン国立航空宇宙博物館研修 宇宙開発, 航空工学, 天文学からテーマを設定し調査
		17:30	同博物館発, 徒歩にてホテルへ
		18:00	ホテル・ホリデイインキャピトル着
		18:30	夕食 (市内にて)
		20:00	研修のまとめ
			ワシントン泊
3/9 (木)	ワシントン	9:00	朝食後, 専用車にてホテル発
		10:00	NASA Goddard Space Center にて研修 ・ Science of Sphere において講義 ・ 施設見学
		12:00	NASA Goddard Space Center 発 専用車にて
		13:00	ワシントン着, 昼食
		14:00	スミソニアン国立自然史博物館研修 ・ 生物, 地学, 考古学からテーマを設定し調査
		17:30	同博物館発, 徒歩にてホテルへ
		18:00	ホテル・ホリデイインキャピトル着
		18:30	夕食 (市内にて)
		20:00	研修のまとめ
			ワシントン泊
3/10 (金)	ワシントン発	8:00	ホテルにて朝食
		9:00	ホテル発, 専用車にてワシントン空港へ
		12:25	UA803 空路にて, 成田空港へ (機内夕食, 朝食)
			(日付変更線通過)
			機中泊
3/11 (土)	成田 着	16:40	入国審査, 荷物受取, 税関審査
	成田 発	17:55	国内線チェックインカウンターにて搭乗手続き 全日空 2179 便 空路にて伊丹空港へ
	伊丹 着	19:20	貸切バスにて学校へ
	津山高校 着	22:30	解散式

## II 研修報告（引率者より）

SSH 海外研修員会委員長 浮田 圭一郎（英語）

### 1. 出発まで

#### ① 募集と選抜

1年3月に説明会を実施，希望者は2年4月にエントリーシートによる申し込みを受け付けた。生徒の関心は高く，約60名の生徒が説明会に参加し，最終的に42名の生徒がエントリーした。

選考は，エントリーシートと面接によって行った。面接は，英語科・理科の複数の教員によって実施し，日本語と英語で行い，科学研究に対する意欲とコミュニケーション能力を重視し評価した。これにより理数科5名，普通科11名，計16名の生徒が選ばれた。

#### ② 事前学習

5月末から16名全員による事前学習をスタートした。事前学習は毎週1回90分を基本とし，引率予定者である英語教員と理科教員に加え，科学部で英語発表指導をいただいているMartina先生にも指導をいただいた。内容は，研修先であるスミソニアン博物館やゴダード宇宙センターに関する事前調査とプレゼンテーション学習，英語コミュニケーション，グループワーク，MITキャンパスにおけるアンケート調査資料作成，しおり作成などを行った。

#### ③ GSO (Global Science Okayama)

岡山県科学英語事業「GSO」を活用し，毎月1~2回，4~5名の外国人指導者に来校いただいて英語コミュニケーションの指導を行った。16名を4班に分け，各班に1名のGSOの先生についていただき，20分ごとにローテーションすることで，全員が毎回4人の講師から4テーマのコミュニケーション演習を行う方法で実施した。

### 2. 研修

3/4(土)出発，3/11(土)帰国の6泊8日の日程である。本校ではこの週が高校入試で生徒は家庭学習日となるため研修参加者の授業のロスが最小限で済む点，夏は他のSSH行事が集中しており実施が困難な点，などを考慮し，3月実施の日程となった。

#### ① 3/4(土)

##### 【フライト】

昼に貸切バスで本校を出発。夕方，関西国際空港より出国。スムーズに出国手続きを終えることができた。

サンフランシスコ国際空港に着いたが，予想に反して非常にスムーズに入国審査のゲートへたどり着いた。トランプ政権下による入国制限政策が懸念されたが，西海岸では特に影響はなかったようだ。入国審査事態は審査官の厳しい態度に不安を感じつつも，すべての生徒が無事に自力で通過することができた。

##### 【サンフランシスコ】

アカデミー・オブ・サイエンスでは，バックヤードツアーをお願いし，施設を案内していただいた。最初は質問が出るかどうか不安だったが，ふたを開けてみれば最初から次々に質問が飛び交った。標本室を見せていただいたり，剥製を作成する部屋に入らせていただいたりした。採集から標本作製に至る過程や使用する薬品等についての講義であったが，自分たちが質問をすることで，自分たちの関心の高さを相手に伝えることができる，ということを改めて感じた研修だった。夕食は市内で済ませたのだが，レストランから出ると突然の大雨に見舞われた。雨に打たれながらホテルに入ったが，部屋に入るとエキストラベッドが用意されていないことに気づいた。すぐに用意はしてもらったが，初日からアクシデントがあったのが米国らしかった。

② 3/5(日)

【サンフランシスコからボストンへ】

ボストンへ移動するため、サンフランシスコ国際空港へ。米国で初めての搭乗手続きとなったが、生徒たちは見よう見まねで素早くチェックインを終えた。ただ、セキュリティチェックでは、日本と違い、ジャケットと靴を脱ぐことに戸惑った模様。また、飲み物を回収される生徒もいた。日本とは違う警備の厳しさを学んだ瞬間だった。

ボストンには予定通り到着したが、5時間以上のフライト、3時間の時差に疲れを隠せなかった。雪はなかったが、気温はマイナス1度とサンフランシスコと約15度の差に震えが止まらなかった。夜は次の日の研修に向けて入念にミーティングを行った。

③ 3/6(月)

【マサチューセッツ工科大学研修】(以下 MIT)

MITでの午前中は、大学院生である古川氏の講義を受けさせていただいた。高校から香港に留学、そのまま大学は米国留学の道を進んだ方で、数理経済学を専攻されている。その経済学を非常に難解な数学で分析していらっしやることから、文系の生徒はもちろん、理系分野の生徒においても引きつける内容の講義となった。特に良かった点は、この講義内で16名全員の生徒が質問をすることができた部分である。どの質問に対しても丁寧な回答が返ってくるなど、生徒たちは考えさせられる点が多かったようだ。

昼食後は、短時間ではあったがアンケート調査を行った。事前に日本で作成した、勉強や人生に対する意識調査を日米で比較するためのデータ集めである。ただ、一番の目的は、アンケートを使って自分からアメリカ人などの学生に話しかけ、会話をすることである。楽しい気持ちと不安な気持ちがありながらのスタートだったが、最終的には全員が話しかけることができた。上手く説明できなかつたり、断られたりすることもあったが、積極性を持ち諦めずに何度も話しかけることができた。

午後は MIT へ移動し、ロボット工学の研究室を訪問した。日本人教授の浅田春比古氏(Harry Asada)の率いる d'Arbeloff Lab を見学した。なお、津山高専と津山ロータリークラブから紹介をいただいたものである。案内をしてくださった学生 Jacob Guggenheim は、体の不自由な人が自分で動けるように筋力を強化するロボットや大地震などの震災後に人間が入っていけない場所で活躍するロボットの研究をしていた。自分の研究についてとても楽しそうに説明してくださる姿に、学ぶことの意味を考えることができた。また、特別な取り計らいで次から次へと別の教授が運営する Lab を紹介してくださり、予定になかった研究も見学させていただいた。「大事なことは人と人とのつながりだ」とおっしゃられた言葉が印象に残った。生徒の中には「科学で世の中の人々を救いたい」と考える者も出てくるなど、大きな収穫のある訪問であった。

④ 3/7(火)

【ハーバード大学研修】

午前中はハーバード大学ロングウッド校(メディカルスクール)の講義を受講した。歯学部の永野健一先生。世界最先端の研究施設、医療現場の説明を受けることができ、世界でトップレベルの学生たちがどんなモチベーションで学んでいるかがわかった。永野先生からは、留学することの大切さも教えていただき、将来留学する意志を固めた生徒も多くいた。

午後は、同校にて3人の先生方の案内によってハーバード大学の提携病院を訪問し、交流・研究紹介・実験デモ・講義等を受ける。特に歯学部の研究室では骨粗しょう症の研究内容を見せていただいた。丁寧に分かりやすく説明をしてくださり、実際に実験中のマウスの姿には驚かされた。どの研究所でも生徒は積極的に質問ができるようになってきており、成長が見られた。

⑤ 3/8(水)

【ボストンからワシントン D.C. へ】

アメリカの首都ワシントン D.C. へ移動。搭乗手続き、セキュリティチェックも慣れたものだった。上空の気流が悪く、体調を崩すものもいたが、空港で少し休息をとり回復した。現地ではアメリカ発祥の地ボストンとはまた違った雰囲気を感じることができた。

【スミソニアン国立航空宇宙博物館】

午後はスミソニアン国立航空宇宙博物館で研修を行った。午前中の研修と関連のある展示物も多く、より理解と興味をもって見学することができた。ライトフライヤー号から始まる飛行機とロケットの歴史を感じることができた。アメリカの飛行機だけでなく、日本の零戦を含むアメリカ以外の国の飛行機や探査機も展示しており、人類の空や宇宙へのあこがれとその技術の進歩を知ることができた。

⑥ 3/9(木)

【NASA ゴダード宇宙飛行センター】

次期宇宙望遠鏡である James Webb Space Telescope (以下 JWST) の製造工場を技術者の方の案内で見学させていただいた。まずは宇宙についての基礎知識の講義を受けた。非常に分かりやすく英語で説明をしてくださり、自分たちのリスニング力に自信を深めた。実際に宇宙望遠鏡を作っている施設も見学させていただいた。生徒からは次々と質問が飛びだし、それにひとつひとつ丁寧に答えてくださった。生徒がメモを取りながら熱心に話を聴き、次々と質問した。研究者の方々と交流ができる最後の研修であったが、今までの経験から学び成長した生徒の姿を見てとても誇りに感じた。

【スミソニアン国立自然史博物館研修】

午後はスミソニアン国立自然史博物館で研修を行った。巨大な博物館であるため、各自が興味のある展示を探して研修をした。日本では映画でさらに有名になった博物館であるが、大きな象の剥製を見たときには生徒も感動したようだった。事前研修で博物館の展示については予習がよくできていたため、各自が熱心に興味のある分野を見学できた。特に生徒は動物の展示や鉱石の展示をよく見ていたようだ。

⑦ 3/10(金)~3/11(土)

【帰国】

ここ数年、機材トラブルなどで予定通り岡山に帰ることができていなかったもので、当日は非常に緊張感があった。ウェザーニュースを見ると非常に大きなサンダーstormが中西部から近づいているのがはっきりと示されていた。ワシントンダレス国際空港で出国の手続きを済ませ、祈りながらゲートに向かった。なんとか飛行機は時刻通りに飛んだが、帰国後、数時間遅ければ飛べていなかったことを知り、この研修メンバーの運の良さを感じた。伊丹空港からのバス内では引率教員から、この研修を通じてのそれぞれの思いを伝えた。津山高校に到着後には解散式を行い、生徒からこの研修での反省の弁や今後への思いを涙ながらに伝えてくれた。このメンバーで研修を行うことができ、心から良かったと思える瞬間だった。

### 3. 研修を終えて

SSH 第1期目として最後の海外研修を完遂することができたが、例年以上に収穫の多い研修になったと感じている。この成功が収められたのも、ひとえに関係機関のみなさまや研修先、また先生方や保護者のみなさまのご協力をいただいたからである。何よりもまず心より感謝を申し上げたい。

さて、今回研修に参加してもらえた平成27年度入学生は全般的に大人しく、温和で礼儀正しい。集団の輪を大事にしてくれるなど、自信を持って世に送り出せる生徒たちである。しかし、視点を変えると、いささか消極的で自分の意見を控えようとする学年とも見受けられる。私としては、彼らの将来を見据えて変化を加えたい部分でもあった。

私はこの研修を通して学年の中核を担う生徒が出てくることを願った。渡米までの準備期間に当てられたこの一年間、出来る限り教員側が口を出さないよう生徒の主体性を見守ってきた。海外研修から帰国した際には、「もっとああしておけば良かった」、「こうしておけば良かった」という声が生徒から上がった。それは当然であり、良い気づきであると私自身は思う。人は失敗して反省することで成長していくものだと考えるからだ。

グローバル化が叫ばれる昨今、年輩者から若者に向けて「自分が成長するために失敗をどんどんしなさい」という声が掛けられるのを耳にする。かく言う私もそのうちの一人である。ただ、若者はこちらが思い描いたように失敗をしてはくれない。その答えは単純で、行動を起こさないからである。いや、起こせないといい方が良いのかもしれない。「若いときの苦労は買ってでもしておけ」。その意味が私自身高校時代はわからず、気づいたときにはすでに手遅れだった。20代前半から10年以上米国に住んだが、渡米当初は失敗の連続。そして、そのうちのほとんどが、10代に経験しておかなければならないものだったのだ。

実は左記の報告書には書けなかったが、今回の研修生も入国審査から帰国の途に至るまで数多くの失敗を重ねてしまった。研修中に消極的になってしまい思うように質問ができなかった者、事前の英語学習が足りなかった者、外国人に対して意思表示がはっきりと出来なかった者、時間を守れなかった者、はぐれてしまった者、数えればきりが無い。繰り返しになるが、こういった海外に出れば誰もが経験するであろう失敗を私は高校時代にすることができなかった。人によっては、些細な失敗だと言うかもしれない。ただ、そのわずかな経験が、後に大きな影響を及ぼすと身をもって言うことができる。

もちろん、人生において失敗は少ない方がいいだろう。しかし、不器用で出来の悪い私は、数々の失敗を踏み台にして、生きる術を身につけてきたし、恥ずかしながらそのスタンスは今も変わらない。私が新聞記者時代に関わらせていただいたイチロー選手でさえも、無数の失敗と向き合ってきたことで今の彼があるのだ。

イチロー選手(当時ニューヨークヤンキース)は日米通算4000安打を達成した際に、次のように話した。「4000のヒットを打つには、僕の数字で行くと8000回以上は悔しい思いをしてきてるんですね。それと常に自分なりに向き合ってきたこと。その事実があるので、誇れるとしたらそこじゃないかと思えますね」。世界ナンバーワンの称号を手にしたイチロー選手においても、喜びを感じられるのは何か記録を作った時の「一瞬」だけで、結局のところ記憶に残るのは凡打という失敗と対峙した「何で出来ないんだろう、俺は」という悔しさだけだという。「失敗は成功の母」という言葉はまさに誰にでも当てはまる。

今回の海外研修においてもメンバー選抜試験から大きなドラマがあった。精一杯の準備をして臨んだ結果、合格を手にすることが出来た者。残念ながら不合格に終わった者。結果は違えど、この両者に共通することは、未知なる世界に挑戦したという事実。そして行動を起こしたことにより、かけがえのない何かを得たということ。彼らの勇気に敬意を表し、心からの拍手を送りたい。今後の人生においてもより積極的に、そして行動を起こせるグローバルリーダーになってくれることを願う。そして海外研修参加者は覚えておいてほしい。米国で世界最高峰の本物に触れることができたが、その内容はもちろんとして、そこに関わる人物たちは勇気のある行動を起こし、日々の失敗をなんとか乗り越えようと闘っている方ばかりだということ。



### Ⅲ 生徒レポート

## What I noticed throughout two universities

Takahiro Baba

I was interested in going to MIT and Harvard Medical School because I'm interested in technology and want to be a doctor. In MIT, we went to laboratories, where students make a lot of inventions. At the first laboratory, one student studied on both robotics and biology, so I was surprised. In Japan, students study on only a certain topic. Some of his inventions are simple, but we would hardly come up with such ideas. He has a lot of ideas and his inventions vary, so I think he's interested in various things and that is important. If he had studied on a certain topic in Japanese university, He may have not come up with such various ideas. His invention that I'm interested in the most is the machine which can distinguish cancer cells from usual cells and remove it. At the second laboratory, students study on the machines which help disabled people. They focus on healthy human's movement and make inventions by imitating it. They also focus on rhythms when people walk. I'm interested in it. Through visiting laboratories, I found that we need to try to solve problems with various thoughts.

When we visited Harvard Medical School. I talked with three researchers from Japan. Each of them lives in a different environment, but they all said they can study on the topic only at Harvard, and one of them has the technique his boss wants, so I think of the importance of having a concrete opinion and a specific skill. I want to study abroad, so I have to continue to practice and acquire these skills. There are a lot of hospitals near Harvard. I was surprised at the environment in the hospitals. They are colorful and they differ from those in Japan. And near the hospitals, a lot of emergency cars wait for hospitals to receive patients. The USA is not only good and I feel how good environment Japanese live in. I was very shocked.

In two universities, I had chances to speak to students there. I like speaking English, but I had never been abroad and I hadn't known if I could make my English understood in foreign countries, so I had been nervous. However, they understood my English and I could communicate with them a lot about their dreams and what they thought about American economy. I was very happy because I could talk with foreign student in English by myself. This experience is my treasure.

Through visiting two universities, I think self-confidence is the most important. All the students are confident and try hard to solve problems. And they have a dream and they go to the universities in order to achieve the dream, so I think what is important is not going to good universities and studying abroad but having a dream and going to the university where we can achieve the dream. This thought change my mind. Now I study hard in order to achieve my dream. And I'm going to keep what I learned in the USA in my mind.

*All your dreams can come true  
if you have the courage to pursue them.*

追い求める勇気があれば、すべての夢は叶う。



# My Irreplaceable Experience in the U.S.

Kaito Morinaga

We took a trip to San Francisco, Boston and Washington, D.C. We saw a lot of advanced study and historical things. We had many good experiences and I'll introduce some of them.

## 1. Massachusetts Institute of Technology

At MIT, we took a lecture about economy, especially about the gap between the rich and the poor. It was so interesting that I found interest in economics. We also saw Robotics laboratories. There were Auxiliary machines which helps handicapped people, elderly people and children. They can assist people's moving and light, so they'll be used on a daily basis in the future. I was surprised how they are useful and they were made by university students; they are not so older than us.

## 2. Smithsonian Museum

We went to National Air and Space and National Museum of Natural History. We could see very historical things. I was touched that many good and expensive exhibits can be seen for free. For example, the models of planets and fighters, insects, stuffed mammals, dinosaur fossil and minerals. Above all, I was impressed by minerals. There was Dom Pedro Aquamarine shining blue and captivating people. I felt wisdom of the human race and grandeur of nature. I want to go there again when I become an adult.

## 3. Harvard University

We took a lecture about studying abroad. Studying abroad was a pipe of dream for me before this trip, but I began to think serious about studying abroad through this trip. We also saw medical institution. It was so huge and strict. Japanese students guided us. They had big ambitions and were working so hard that I received a very good stimulation.

## 4. English

Actually, I wasn't afraid to communicate with American people. However, sometimes it was hard to catch the words and tell my opinion. Of course, American people can speak English very well, so they can understand my unskilled English and use easy words to understand for me, so there was not much trouble in communication, but I'm not satisfied with my English. I must work harder to improve my English. I'll do my best.

## 5. Conclusion

American culture is so differ from Japanese culture. In other words, natural in Japan is not a matter of America. I was keenly aware of it at this study trip. And I think English ability is becoming more important recently. People often say that Japanese people can't speak and listen English well. I think so too. But what should we do to improve these ability? In my opinion, the best way to improve English is communication. I am so glad to go to America when I am in my teens. Harmonious coexistence of two cultures is becoming very important. Through this trip, I could know American pioneering technology and long history. I want to understand other cultures deeper and grow on what I gained in this trip. Lastly, I want to thank all the people involved in this trip.

*Life is like riding a bicycle.*

*To keep your balance you must keep moving.*

人生とは自転車のようなものだ。

倒れないようにするには、走り続けなければならない。





# The Study Trip in The U.S.

Aoi Kondoh

First of all, participating in this study trip was my dream which I had had since I was a first-grader. So I was really happy when I knew that I could go to America. During this trip, I could have very great experiences and think everything from different perspectives. Here, I talk about some points of my experiences in America.

1. Massachusetts Institute of Technology ————— At first, we met a Japanese man, Mr. Furukawa. He majored in economics at MIT, and he lectured us on it. In the lecture, he talked about economics, using an example of rate. I thought it interesting that economics is the fusion of humanities and science. After the lecture, we visited some robotics laboratories of MIT. There, graduate students study robotics and make various robots which help people move: an assisting robot that assists those who were paralyzed on one side of their body. I was surprised to hear that the robot enabled them to open caps of bottles. The technique was really great.

2. Harvard University ————— We went to The Harvard School of Dental Medicine and met Mr. Nagano, who is a Postdoctoral Research Fellow. He told us about studying abroad. In his lecture, I was interested in the fact that several screenings of Curriculum Vitae or school records are requested before we can carry out studying abroad. For example, if a university student wants to study abroad, he must submit many documents: school records, TOEFL scores, essays, recommendations, and so on. I want to study abroad in the future, so I have to study much harder. After Mr. Nagano's lecture, we walked near The Longwood Medical Area with Mr. Sanbe. There were many large hospitals and laboratories. Mr. Sanbe explained those facilities to us. The conversation I had with him about hospitals was really interesting. Listening to their talk, I got to think of working at a medical facility as one of the choices of my future.

3. Difficulties of Communicating with Foreign People ————— Before I went to America, I was filled with anxiety because I had little confidence that foreign people could understand my English. I was poor at speaking English, so I tried to talk in English whenever I could. During the GSO classes, we spoke only English and had to tell what we thought to others. Thanks to the classes, I gradually got confidence in speaking. However, not everything went well. In reality, the Americans spoke so fast that I could hardly understand what they said and hardly replied to their questions at first. Besides, I could ask people few questions. My friends asked many people even during very short time. I regret not speaking to Americans. I fully realized my lack of courage to speak to them and my lack of knowledge. Through this trip, I got new knowledge and had many setbacks. It changed my view of life, jobs, and so on. Making use of this great experience, I want to study English harder and study abroad. Then, I'll be a person who can contribute to sports medicine in the future. Lastly, I really appreciate that the other members, teachers and my family supported me in every aspect of this study trip.

*Most of the important things in the world  
have been accomplished by people  
who have kept on trying  
when there seemed to be no hope at all.*

この世で重要なことのほとんどは、全く希望がないように見えたときでも  
挑戦し続けた人々によって成し遂げられてきた。



# My precious experiences

Hikari Morita

Through this study trip, I learned the importance of having my own opinion. I have not been able to ask questions actively because I have not been good at listening what people talk with question awareness. On this trip, however, I came to be more conscious than usual by seeing the attitude of the almost all friends around me. They said their opinions and asked the lecturer what they did not understand. Especially, there were two places that I got conscious about such an attitude.

## 1. Harvard University

We took the lecture “Encouragement for studying abroad” at the university. I have not been interested in going abroad to study, but my idea changed by understanding the significance that studying abroad leads to rediscover the Japanese culture, acquiring a broad view of things. I knew that it is important to look back on and form my experiences I have ever had to think about my future. After the lecture, we visited many laboratories and a library. In particular, I was interested in a skeletal specimen of mice distinguished hard bone and cartilage by using different colors. While taking a walk, I could ask teachers questions whenever I wanted to, because they answered kindly. Unfortunately, although we did not send questionnaires to students because of lack of time, I could take a step forward.

## 2. Massachusetts Institute of Technology

In this lecture, I knew the importance of having thinking from multiple perspectives; we do not understand things as they are, but actually we should think from different angles. Every student asked the lecturer questions many times, so I was very stimulated by their eagerness. When I communicated with students and asked some questions, I felt happy because I could get through to them with my English. I also could have confidence and want to improve my English skills more and more.

I was surprised at the difference between America and Japan cultures. Japanese take it for granted that they provide service to help someone. But Americans provide it to get their tips. I felt that it is difficult to tip people who service for me, but I could understand the difference by the experience. I realized one proverb, that is “Seeing is Believing.” I found out a lot of great things about America. On the other hand, I also rediscovered good points of Japan. I prepared a lot for this trip, but there were many things that I knew for the first time through the communication with local people. I could talk with people without being afraid of making mistakes because they tried to understand my English. I noticed that the difference between America and Japan. It is whether we can convey our way of thinking to a person or not. I was surprised at the Americans’ positive attitude having their own opinion strongly. I feel almost all Japanese are very passive, so we should model such style.

*To awaken quite alone in a strange town  
is one of the pleasantest sensations in the world.*

見知らぬ街で自分が孤独だと気づくことは  
世界で最も歓喜なことのひとつである。



# The experiences in America

Mitsuki Uchida

“I was glad to have participated in this science trip.” It’s my first impression that I felt after I came back home from America. I want to introduce all of my experiences of this trip, but, unfortunately I have no confidence to do so. I got too many wonderful experiences to write down on this paper. So, I introduce three points where I was especially impressed, excited, and interested in.

First, I found “What is a scientist?” through this trip. I saw a lot of scientists and students of Harvard or MIT who are likely to be scientists. Before this trip, I guessed that scientists and students in America were more active than those in Japan. But, I discovered that those in America were much more active than I had guessed. I heard that they have to assert themselves to be chosen as a member of the study group which they want to join because it is hard for them to work against people all over the world without promoting themselves. I thought many Japanese people tend to be passive. I think scientists are people who can not only think deeply but also show their ideas and share them with others. I should be such a person.

Second, I thought deeply about “the meaning of science” in America. I used to think mistakenly that the scientists consider only science and on this trip I found the case was otherwise. Many of the scientists I met in America seemed to want to support societies by using science or technologies. At MIT, scientists tried to assist the people who can’t freely move their arms or legs. At Harvard, scientists studied hard to solve tooth problems which many people suffer from. They study very hard so that they help other people and societies. Visiting them, I got a stronger will to be involved in science to make societies more comfortable to live.

Third, it was not until I joined this science trip that I would like to study abroad someday. Actually, I used to think of studying abroad as a waste of time and money because there’re many facilities to study in Japan as good as those in America and a stay abroad would likely include some risks. But, I found that it was absolutely wrong. I watched many facilities in America which are larger than those in Japan and the researches that were done there are the latest. And I could learn the diversity of culture or personalities. It seems impossible to learn that in Japan. So, it means, I got various exciting experiences that I can’t go thorough in Japan, in only just a week! It’s very interesting. That’s why I want to study abroad. When I can study abroad over a longer span than this time, I want to observe and absorb many things that I can learn only in foreign countries.

I want to thank those who are involved in this trip to help me join it. It will surely be valuable what I saw in America and what I found in myself on this trip. I determined to remember this science trip forever and study even harder, above all science and English. And someday, I want to contribute to Japanese science and society by taking advantage of the experiences of studying abroad, of course including this science trip.

*Live as if you were to die tomorrow.*

*Learn as if you were to live forever.*

明日死ぬと思って生きよ。永遠に生きると思って学べ。



# Meaningful Experience In America

Daiki Hayase

I was impressed by this study trip. I had never been abroad, so I came in touch with other culture for the first time. I want to introduce some cultural differences that I experienced on this trip. First, American people are more friendly and interactive than Japanese. Before I went to America, I had little confidence to talk with local people well, but in fact, American people spoke to me actively and tried to listen to my poor English, so I was very happy and I enjoyed talking to them. Also, relatively, Japanese people think that silence is a 'Yes' sign when we are asked whether we understand or not, but it confuses American people. They always respond to questions every time. Only Japanese people are silent in that situation. It was a cultural experience for me.

Also, we visited some famous places. I want to introduce about it. We went to MIT and Harvard Medical School. I was interested in visiting these places before we went on our study trip because Harvard and MIT are top class universities all over the world. We saw the latest technology to help people who have disabilities to live a comfortable life as healthy people. To solve disability problems, machines should become automatic. Actually, Japanese technology also try to automate to help people, so I think regardless of the country, engineering goals are very similar. In fact, a Japanese venture cooperates with the MIT lab. Japanese engineering is inferior to that of America, but the more global the world becomes, the more cooperation with countries may be needed. We also saw research in Harvard Medical School. We could ask many questions and find many differences between Japan and America in studying. But people who study abroad from Japan to research at Harvard are not as few as I had thought. We also learned about studying abroad and I thought that studying abroad to learn science and technology is not only a merit, but if you want to take your science talent completely and to be stimulated by high level technology, you have no choice but to study abroad to research.

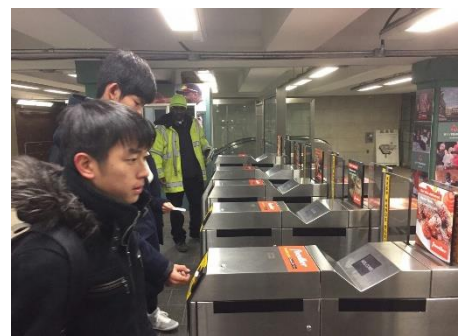
Through this precious experience, I have various view points and find important things. I recognized that English skills are necessary to go abroad, but these skills includes confidence and that's the most important. If you have confidence, you enjoy talking with local people in English without perfectly English skills. Many of Japanese people including me are not positive. To be closer and get over America, we have to realize communication. I also felt that science is universal around the world in spite of the world using a lot of languages. Scientists love science and their research. It's natural but there is no difference between Japan and America. Needless to say, language is necessary, but if we have feeling to love for science, it may replace to words. Of course, studying English is also important and we mustn't forget it.

I'm grateful to Mr. Ukita, Mr. Kunisada, my family and argents who supported this study trip. As I wrote before, I had never been abroad, so everything I saw was fresh for me and I enjoyed staying in America. But it's important for me how to change my life after this study trip. I'll try to challenge anything I want to do with this magnificent experience. Thank you.

*You can postpone*

*what you can do at any time,  
so you don't have to give up now.*

いつでも出来ることは後回しで良いが、諦めるのも後回しで良い。



# What I Learned In America

Hana Fujita

I learned two things through this science trip. First thing I learned is the importance of having a goal and being ambitious. My goal of this trip was to get something special and change myself because we would visit many latest facilities we may never visit again and there we would have a valuable experience. I thought this would be a chance to overcome my weak points: I always hesitate to do something. In America, I had to take an action to grow up myself. That is, I had to think about the meaning of what they said and ask questions immediately.

At first, it was hard for me to ask questions in English because I worried about being in the public eye and I was afraid of making mistakes, but I was encouraged by one of my friends asking many questions in English fluently. I didn't want to lose to him and I also wanted to be like him. That feeling made me active. Thanks to him, I got much information on my own and I could do my best. Though my English was poor and my questions might be easy to answer, they said "good question" to each of my questions and answered me a lot of things I hadn't expected. It gave me confidence to be more ambitious.

Through this experience, I learned making comments are more important than what is commented. Also, I was impressed by a Japanese post-graduate student in Harvard. She looked full of confidence and she said "My dream is to be a top specialist in my major." I thought study has no border. By visiting many latest science laboratories and finding the new way of scientific approaching, I could widen my international horizon and could spend a positive week.

The second thing I learned is the gap between rich and poor. My dream is to belong to the supporting refugee community organizations, so this experience became very important to me. I saw many homeless people on the street around the beautiful buildings. When I was walking on a street in Boston, a woman approached to me and said "Please give me some money. I have to buy foods to my family." but I couldn't give her money because we were told they may be dangerous and that we should not give anything to them. Perhaps, she simply wanted money and told me a lie, but she seemed to have no home.

I realized that I had considered the problem of poverty as a bystander. I had thought I could do something to cheer them up, but I realized I was powerless. I also found the equal society I had thought was just a dream. This problem is not only a matter in America, but also in Japan. This problem is difficult to solve, but I will contribute to make a really equal world.

Lastly, I realized that I should study more in my daily life. If I had had more basic knowledge of science and more vocabulary skill, I could have understood what they said more deeply and I might have asked more questions during the trip. The lack of those skill and knowledge caused the lack of self-confidence. Also, this time I set the goal to do my best and grow up "myself" and could realize it, so from now on, I will lead "everyone" to be positive.

I learned a lot of things for a week. I'm going to take this experience into my life and use these experiences to be a leader of future generations in the world.

*Kites rise highest against the wind*

*- not with it.*

風が一番高く上がるのは、風に向かっていている時である。  
風に流されている時ではない。



# The Study Trip in America

Haruka Ashida

I participated in the SSH study trip. It was only a few days that I stayed in the U.S., but I learned a lot of things. It is a special experience to have studied on this trip.

- MIT(Massachusetts Institute of Technology)

In the morning, we attended Mr. Furukawa's lecture. He talked about economics to us. It was interesting for me that economics is so related to math. I found it important to have not only a mathematical perspective but also an ethical one. In the afternoon, we visited Jacob's laboratory. Jacob is a student who studies robotics in MIT. His robots are so pioneering. It seemed that his robots are made to help people. I think their techniques will help people with disabilities to live as healthy people in the near future.

- Harvard University

In the morning, we attended Mr. Nagano's lecture on studying abroad. He told us that there were so many options after graduating from high school. Though I had felt studying abroad difficult, I could think of it a little closer now. In the afternoon, we saw Nagano's laboratory and facilities in Harvard Medical School. I thought laboratories and hospitals in America were more open and brighter than those in Japan. It seemed that Americans thought about diseases positively, and I think the attitude is good.

- NASA Goddard Space Flight Center

First, we visited a large clean room. A lot of engineers are making a new telescope, which replace Hubble space telescope, James Webb telescope. I was very impressed that I actually saw the hexagonal mirrors made from beryllium. Next, we went to the room to test whether the telescope can resist vacuum, speed, coldness, and sound. I found many scientists and engineers in the world cooperated to make mystery of the universe clear.

- Smithsonian Museum

On March 8<sup>th</sup>, we visited the National Air and Space Museum. There, I saw the first aircraft in the world, made by the Wright brothers. I was moved by the effort of those who dreamed that they flew in the air. There were aircrafts used during wars, too. I was especially impressed with the Zero Fighter. It scared me. I think it necessary to know about the war in order not to repeat the tragedy of wars. Next day, we went to the Smithsonian Museum of National History. They were a number of jewels. They were very beautiful and I rediscovered the grandeur of nature. There were a lot of stuffed animals, so I felt as if I had been in a zoo! They devised a way of exhibiting the collections to have all generations enjoy and study nature.

I saw a lot of pioneering researches and techniques of those who played an active role in various fields. I was so impressed that they all seemed to enjoy studying. I thank all people who gave us this chance. I want to repay them by taking advantage of the chance and becoming a person who can play an important role in society in the future.

*Where there's a will, there's a way.*

意思あるところに道は開ける。



# U.S.A. Science Camp

Haruna Nogami

We had a wonderful experience through this science camp in the U.S. I can't count the number of things that we learned there!! So I will introduce two of these things which I especially want to tell you.

First, I rediscovered the fun of science. We visited many scientific facilities, and learned advanced science. Visiting NASA Goddard Space Flight Center was particularly impressive for me because I have been interested in universe. There a guide explained about the James Webb Space Telescope. The explanation was all in English, but I could understand it fairly well. I think it is because we learned about the telescope in advance at school. We learned the structure of the telescope and the tests which it will do. Fortunately, we could actually see it. It was folded, and it was in the corner of a big cleanroom, so we were able to see only a part of it, but I was very happy. To think of that it will go to universe and do many missions, I was very excited!! Seeing it with my own eyes was a very good experience, and my interest in universe had risen more than before.

Second, I found it interesting to communicate with people in English. Actually, I was very anxious about whether I can really talk with American people in my not fluent English. At first, I was very nervous about talking to American people, but they answered me kindly, and gradually I found it interesting to talk in English. Sometimes I couldn't understand what they are saying, then I asked again, and I was able to communicate with them. That experience changed my doubts into my confidence, and I could actively talk to people in many places. Experiences in this trip may have changed my character!! I think I could become more positive than before. When my English didn't make any sense, I used gesture. My communication skill has absolutely improved during this trip. But I also felt immature because of my English. It's irritating that I can't explain what I want to tell in English. I thought I wanted to talk more. My motivation to study has increased a lot.

Other than the above, I could learn a lot of things such as the difference of culture and customs between America and Japan, or the each good points of the two countries. I also learned that Japanese common sense is not a world common sense. If I didn't leave my own country, I wouldn't learn these things. I was able to acquire an international perspective and widen my view. During this trip, we faced many difficulties and troubles, and we overcame them, being supported by our teachers. Cooperating with each other, we were able to make this trip very valuable. This experience will be helpful for us to live in this rapidly changing world. I want to share this wonderful experience with many people. Lastly, I really thank our teachers and many people for supporting us.

*If you can dream it, you can do it.*

夢見ることが出来れば、それは実現出来る。



## Wonderful experience in the U.S.

Kazuya Ishihara

This study trip in the U.S. was definitely the most wonderful experience ever. I'm very happy that I took part in this study trip and that I visited a lot of wonderful facilities there.

What is most impressive for me in this study trip is Mr. Furukawa's Lesson at MIT. He is a Japanese student at MIT, who majored in economics. I really enjoyed his lesson because I was also going to major in economics in the future. He explained the attitude of economics with mathematics. He said "As mathematics is sometimes applied to economics, humanities academic are also applied to scientific ones. In the U.S., there is no distinction between humanities academic and scientific ones. Also you should study various academic for your own future." I was shocked by these phrases of his very much because I had thought that I had not had to study mathematics and science so much because I'm in the humanities course. But I found it necessary to these subject, as well as Japanese, English and History. He also told us the reason why he had dropped out of a high school in Japan and had come to the U.S. They are also interesting because I was also going to study or work abroad. His experience in foreign countries was so interesting that my ambition to study abroad became much bigger. After his lesson, we asked him some questions and I also questioned him about economics. He answered me very properly. The more he spoke, the bigger my interest in economics became.

Else, we visited a lot of wonderful facilities, such as the Harvard medical school, Academy of Science and so on. We were able to see various great technologies there that we couldn't see in Japan. I had less knowledge of science than other students did, but I was able to understand them well because students and staffs there explain politely. All of them had enthusiasm and confidence in their work and correctly answered whatever we asked, so I found them very nice and I also want to be like them.

Through this study trip, in short, I was very motivated. I learned and experienced a lot of wonderful things that I couldn't in Japan. What is most important in such experience is that I was able to find out various differences between the U.S. and Japan. For example, there are a lot of homeless people there. Even though we were in Boston, which is one of the most beautiful cities in the U.S. and, where it seemed that almost all people were rich, we saw many homeless people living in the street. This is what we never see in Japan. U.S. is often said to be "self-responsibility society" If I had not been there, I couldn't have found out it. It is very good for us to have experienced such things before I become an adult. My dream is to work abroad. By making good use of these wonderful experiences, I want to succeed overseas.

*When in Rome, do as the Romans do.*

郷に入っては郷に従え。





## Through the activity of GSO

Mayo Yasui

I participated in the study trip to America after doing advance training for about 10 months. As a result, I took in so much useful information during this trip.

I thought at first I'd be inferior to other members, so I didn't have the confidence to tell my opinion and to act of my own accord. However, as I had a discussion in one activity of GSO, I was able to oppose my opponent's opinion and tell the others my opinion clearly. I found such training very important because it is dangerous to act in a situation in which our own will and action does not spread. In the Academy Of Science, I found there was a lot of information I couldn't get until I asked. Therefore I kept in mind that I had to ask question actively to deepen my knowledge more, and I asked many questions in some places. The more questions I asked, the deeper I was interested in and understood about research, meaning of going abroad and so on. Furthermore, I said words expressing gratitude as a representative of students in Harvard University, and I acted as a guide for the girls' group in Boston. From these experiences, I was able to acquire eagerness to get knowledge and courage to act of my own accord.

I found a lot on this trip. When I listened to different lecture, the lecturers had a big dream and confidence that they can realize what they want. On the other hand, I thought people in Japan tend to think it more important to find a job as soon as possible and get their social status or steady income than do what they really want to do. But I think a reason of living is to chase and achieve your dream even though you have a lot of ups and downs. And also, I thought I was weak in my own action. Without having responsibility and confidence for myself, other people will never trust you and lose confidence. So, I want to become someone who understands circumstances, who has responsibility and confidence, and can also lead other people.

However, what I was also worried about is the economic gap in America. While luxurious buildings are there and many people are having a good time, there were the homeless trying to survive desperately every day. We tend to focus on good points, but I think we must not forget the reality that poor people just barely live a day life.

I was able to widen my view through this trip. As I talked with many people, I thought of my future course more than before, and felt like finding out a new way I recognized my dream. I think a wide view is the material to consider and solve problems. I can say with confidence that various experiences in this trip made me mature.

But at the same time, I felt my low English skills. I couldn't listen to explanations in detail and answer the sudden question. I'm sure that this frustration associates with my eagerness for studying, and further I never give up and want to keep trying hard to fulfill my dream. Thanks to many people, I was able to get so precious an opportunity, so I want to return the favor to them and show my own growth. Moreover, I would try to improve other student's motive. Going to America this time became my turning point. I continue to make effort with this study trip in mind. I'm grateful to my parents for permitting me to participate in it, to five teachers of GSO for helping me develop my English skills, to my friends for improving one other and to Mr. Ukita and Mr. Kunisada for supporting us on our study trip. It was a great honor for me to participate in this study trip!

*The real voyage of discovery consists not in seeking new landscapes,  
but in having new eyes.*

真の発見の旅とは新しい景色を探すことではない。新しい目で見ることなのだ。



# What I learned from going to America

Ryo Sanmoto

We, Tsuyama high school students visited the United States of America in March, 2017. I learned a lot of things, for example, I can do nothing without someone's help and the common sense of Japan is not that of America, the world. I thought that I know those things before going to there, however, after going, I was made to experience. Especially, when I think about the common sense, I realize that what a kind world I have lived in. Japan is easy to live in, this is good. However, I noticed that it is too dangerous to go abroad with having only Japanese knowledge and common sense.

I learned really many things from visiting America. Although I don't know that whether it is good to write such a thing in such a document, however, I want to write about after returning to Japan. We listened to our two leading teachers' speech and I felt that it is the most important thing in this training. They opened their heart toward this training to us. It was when we visited an organization. While we listening to the speech of the staff of there, some of us fell asleep. And then, the staff sent an e-mail to Mr. Ukita and suggested that they shouldn't accept our high school students next year. Mr. Ukita have lived in America and been associated with the organization, so we were able to visit there specially. Though he said it was good that we could know such a thing can be happened, I was shocked.

By the way, I felt there air different from our country. Especially in Washington D.C, I felt something like bloodthirstiness. I recalling that on the bus, Mr.Ukita began to speak his mind toward our high school students. First, he spoke about one of his best friends. One day, Mr. Ukita and he went to the party near slum with a light heart. Then, gangs begin to fight against each other in the slum. And Mr. Ukita's best friend was involved the fight and dead by the stray bullet. Because of this, he said that he cannot forgive people living without thinking. He appealed us that there are some people who cannot live while wanting to live. Finally, he concluded that he want us to insist on our mind, live as hard as possible, and spread the will around Tsuyama high school. I was moved by his words, and, at the same time, I thought that this training trip was conducted for this moment. It was really rare experience which I was able to have because we went to America with these teachers.

After the moment which I listen to the speech of Mr. Ukita, I feel that I changed. After experiencing this training trip, I was able to grow up greatly and learn things which are more important than any other things which I had learned. And I am going to spread what we learned in this trip to our family, our high school, Japan, and around the world. In closing, we thanks to everyone who had had an effort for realizing this training trip and made us have such a great experience which we never forget. I'll never waste what we learned in Sun Francisco, in Boston, in D.C, and on the bus.

*Trial and errors must lead you to the summit.*

挑戦と失敗がきっと君を高めへ導く



## Findings in the study trip to the U.S.

Shogo Fujii

I had a lot of great experiences through this study trip to the U.S. I would like to write about what impressive of this study.

- MIT — On the 3rd day, I went to MIT. I saw a lot of inventions which improve our lives there. They focused on robots help people who cannot move their body freely. For example, gloves that give great power even with small force, a robot which aids walking ...and so on. I could tried on that walking aids robot. I was surprised that it was really light for its size and functions. Teachers and students at MIT politely explained their inventions to us. My friends, my teacher and I asked some questions and we could have a lively exchange. Since I wanted to be a designer who makes machine improves our lives in the future and planned to major in engineering at university, this visiting was precious for me. I'm sure that this experience that I could see MIT's pioneering study when I was a high school student will be an advantage for me.

- Harvard University — I went to Harvard School of Dental Center. I visited facilities and laboratories. I knew that Harvard has a long history from buildings and paintings in the library. At lunch time, I ate lunch with two teachers who were studying in Harvard University. I asked some questions to them at that time. They answered kindly with their experiences. After I questioned the each merits about industry of staying Japan and going to America, I thought my working space might suit to America rather than Japan. I also felt close to studying in the U.S. They attracted me.

- Smithsonian museums — I want to write about the seeing at "Smithsonian National Museum of Natural History" and "Smithsonian National Air and Space Museum". They were big scale and had a lot of precious things but we could visit for free! The natural museum had a lot of real animal models and fossils. They were likely to move. I was happy to see tyrannosaurus bone in the Natural History Museum. Its figure was especially impressive. The air and space museum had various airplanes and spaceships. Zerosen is also exhibited. I am interested in airplane designing, so I was spurred there. Through visiting these museums, I realized their positive attitude toward study. Exhibits are world scale. They treat anything around the world. I felt that this is America.

- Communication — I felt the custom difference between the U.S. and Japan. The first few days, I could not have confidence of my English and was not accustomed to local manner, so I couldn't answer clearly to the clerk's "How are you?", but it was rude behavior. I didn't know how to respond to that question because she asked me in a food store. I thought it over and kept trying to speak, even if it cannot be understood, then, I gradually come to have confidence. After all, I could enjoy the conversation with her. The fear of my English disappeared at that time. I think it owes to the lessons of GSO. Without GSO, I could not have courage to respond to them even if it is the last day. By the way, the next goal is to be able to say jokes in English.

After this trip, I came to want to know more about science, other culture and English and I could broaden my horizons so wide. This study might be elementary but it must be precious in this age. I want to use this study and contribute to the present age called globalization.

*Every extension of knowledge  
arises from making the conscious the unconscious.*

すべての知識の拡大は、無意識を意識化することから生じる。



# I learned a lot on the study trip to the U.S.

Shoki Munekawa

I learned a lot of things in this trip. I saw that how large the U.S. is and how active the U.S. is. I'll show some experiences of in this study trip.

## • A Talk in MIT

In MIT, we listened to the talk of Mr. Furukawa who is an economist. The talk of him was very interesting. I'll explain to you a part of the talk. He said, "It is too difficult to predict where to break and when to break, when we break a chopstick, even though using latest science technology. We can't predict because of a huge amount of factors." But, we should not stop thinking. So, how do we try to solve such a problem? He showed an example here. "Thinking similar to taking pictures." I couldn't understand this example at first. He said, "When we think, we should look at a complicated thing from many sides and think about it. Also, when we take pictures, we can show the three dimensions on a paper. We can see the thing clearly, gathering many pictures of it." I understood it. I thought that this example hit the mark. During this study trip, I met a lot of foreigners. I'll show one example of the difference of Japanese and Americans which I saw on our one-week-trip.

## • The Difference Which I Felt in the U.S.

When I got on the streetcar, I could see the driver. The driver was angry because there were a lot of people in the way. The driver expressed his anger and rang the bell noisily. I saw such an emotional train driver for the first time. During this trip, I saw Americans expressing their emotion. Also, when we made a survey in MIT, I met a lot of people who were very active. They not only answered our questions but also asked me. Maybe I can't meet such people in Japan. I saw American active aspects on this trip.

On the other hand, I also saw the difference about technology. When I go to NASA on this trip, I saw a test machine which tests with vibration. The size of the machine was almost one building. While, when I go to JAXA, I saw the machine which has same work. But, the size was only a table. I felt how Americans technology huge is, thinking of it. Also, I saw the difference of bill. Compared with Americans, Japanese bill are very tough. I felt that there are a lot of things which has small, but delicate technology.

I was able to find that what is really interesting for me and what is not. When I see one thing what I thought most interesting for me, I was not so impressed with that. On the other hand, I was able to find new interesting thing. It is often said that "Seeing is believing," I found it true on this trip. Through this trip, I learned one important thing, "We should check what is most interesting for ourselves from time to time," especially in my life.

*Never do things others can do and will do,  
if there are things others cannot do or will not do.*

他の人が出来ることをしてはいけない。

他の人が出来ないことやしないことがあるなら、それをしなさい。



# Trip to USA

Wataru Ogawa

I learned a lot of things through this study trip. I will write some of them in this report. First, I learned the importance of responding. In Japan, silence sometimes means “Yes”. But it doesn’t mean “Yes” in America. If we don’t respond, we will make the speaker uncomfortable. So, I thought indicating our intention is important.

Second, I learned that to see the genuine things is important. We visited the Smithsonian National Air and the Space Museum and the National Museum of Natural History, where we can see a lot of originals of air planes, space crafts, fossils, minerals and so on. I could see precious displays, which I can’t see in Japan, in details from various eye points and noticed many things. The minerals were sparkling brilliantly and beautifully. I have seen models, pictures, and movies of air planes many times. But when I saw their originals, I was moved by their size and presence. I had never experienced such a feeling before. There were a lot of things I didn’t know before I saw the displays. I didn’t know how big air planes and their engines were for sure. My impressions of them have changed largely. The more I saw the displays, the more I came to like nature and science. Now I want to go anywhere in the world and see anything as many as possible through my life.

Third, I learned the value of living in Japan. In the USA, I ate expensive and bad-tasting food sometimes and left tips many times. I often heard the sound of a siren. My bag was damaged at the airport. In Japan, we can eat cheap and delicious food and don’t have to leave a tip. Japan is one of the safest countries in the world. I think that Japanese people do their work carefully, because my bag was handled carefully at the Japanese airports. We have to treasure and be proud of these Japanese good points. But the USA also have many good points. American people were kinder than I had expected. There were a lot of not only useful but also unique machines at MIT. Moreover, we could enter museums for free. We should build such facilities where many people can learn science easily in Japan, too.

In addition, communicating with foreign people was a precious experience. We took a survey for students at MIT. Asking questions in English was difficult for me. I could not listen to all of their answers and couldn’t completely understand them. But their answers were so interesting and unique that I was surprised. In the Smithsonian Museum I asked some questions to the staff who explained space shuttles to us. The staff was familiar with exhibits. Students and the staff answered me kindly. So, I should have asked more questions. I want to improve myself in English. I was uneasy because I traveled abroad for the first time. But I could get a precious experience in a week. So, I’m grateful to our teachers, my parents and my friends.

*Start where you are.*

*Use what you have.*

*Do what you can.*

今いる場所から始めよ。

自分の持っているものを使え。

出来ることをするんだ。



# What I gained for the future

Yudai Hayase

I had good experiences and I want to introduce in this report what I thought.

First, I realized the importance of the ability to communicate in English. I have been taking good scores at school's tests of English since I was a junior high school student. So I thought I was good at English. Then, I applied to this study trip and after the audition, I was chosen as a member. I was looking forward to going to America. But in the GSO I faced the reality of my English skills. I couldn't speak in English with self-confidence. Not knowing what to say, I often kept silent. In the GSO classes, I became to be able to make English communication to some extent. However, it was not really self-confident. On the other hand, some members spoke English willingly both in Japan and in America. They enjoyed talking with native people and got information easily. I found how poor my English skill was. It was miserable for me but if I had not taken part in this study trip, I wouldn't have realized it. At school, our teachers feed our Basic English skills such as writing, reading, and listening. They are all important. Yet speaking should be emphasized more. I have to be able to express myself in English not only "on paper" but also "in the air". It is worth trying this challenge so much.

Finally, I found that studying is common in the world. On this study trip, we visited some academic institutions, such as MIT, Harvard University, and Academy Of Science. At those places, researchers told us joyfully what they do in advanced researches. I felt that they did enjoy their research. Though we still can't do these researches, it is possible for us to find joy in what we are learning at school every day. It is probably not easy but I'm sure that doing so makes our future more joyful. I could understand the mean of studying for my dream.

In addition, I found common ground of study at bookstores in America. Then I found reference books American students use. When I opened one of them, it looked difficult because of course it was all written in English. However, as I read it, I could understand the contents. It was not so difficult. In fact, what students in America are learning is not quite different from what we are. When I found that, I began to believe that studies connect me to the world. It is great, isn't it? I'm so excited. As I said, this study trip gave me considerable motivation. It was a special experience which I can't have absolutely in Japan. I want to make it not only for myself but also for other students, it's the mission of the members of this study trip.

I thank all corporations for this study trip. I'll keep up my hard work, thinking of this mission.

*Action may not always bring happiness;  
but there is no happiness without action.*

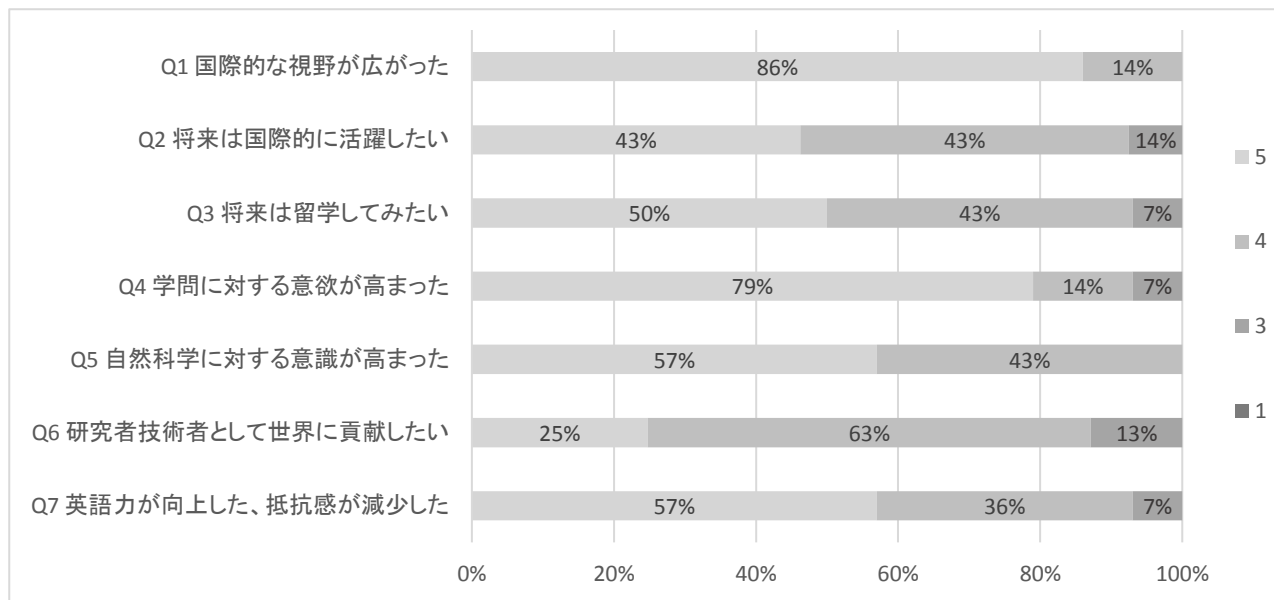
行動は必ずしも幸福をもたらすものではない。  
しかし、行動のないところに幸福はない。



## IV 成果の検証（生徒アンケートより）

研修終了時に行った参加者を対象とするアンケートを実施し、分析を行った。

### 1 全体を通して



#### ①国際性の育成について

Q1～Q3において過半数が高評価であり「グローバル人材の育成」という目的に対して意欲の面で成果を得られた。例年と比べてQ1の割合が少し増加しており、研修で経験したことの効果が大きかったと思われる。

- ・海外留学に興味のなかった自分が海外に身を置き研究するのを想像するようになった。(普通科男子)
- ・日本の良さを再認識し、多方面を幅広く見ることが出来る人材は不可欠だと感じた。(理数科男子)
- ・日本で自分が何も考えずぼんやり過ごしているとわかり、自己主張の大切さを知った。(普通科女子)
- ・将来、自分の視野を広げるためにも留学して、外から日本を見てみたい。(普通科女子)
- ・自分が日本社会の一構成員だと気づき、日本の為に勉強や貢献したいという気持ちが芽生えた。(理数科男子)

#### ②自然科学・科学研究・学問に対して

今回の研修には人文コースの生徒も6名参加していたため、Q6のみ設問対象から除いているが、Q4,Q5,Q6とも過半数が高評価である。一昨年と比べて3項目とも「5」の評価が減少しているが、「5」「4」を加えた数値はほぼ変わらず、科学研究に対する関心がこの研修によって高まっていることがわかる。

- ・宇宙のこととか工学系のことを大学で学びたい。(普通科女子)
- ・研究する上で大切なことを自分の中で1つ確立できたと思う。(理数科男子)
- ・技術は人を幸せにしたり、感動させる力があるという思いが強くなったので、自分も科学を学び、社会貢献しようと思う。(普通科男子)

- ・多くの科学施設を訪問し、科学の楽しさを再発見した。(普通科女子)
- ・海外で学んだことや経験を活かして、日本のスポーツ医科学会に貢献し、人の役に立てる人間になります。(理数科女子)
- ・MITで色々な開発を見せていただいて、色々な分野で自分のアイデアを出していて、ロボット工学の研究は実はあまり見たことがなかったので非常に興味深かった。(理数科男子)
- ・どの研究室見学、講義も自分が思っていたより身近でかつ理解しやすい内容だったのでとても興味深かった。(普通科女子)
- ・研究室での見学も研究者の方々のおかげもあり、将来自分がしてみたいと思えるようなものを感じられた。(普通科男子)
- ・世界トップレベルの大学や研究室で学んだことから、自分を動かすようなものがたくさんあり、これからの学習のモチベーションに大きくつながった。科学に対するアメリカの考えを見ることができて良かった。(理数科男子)

### ③英語について

研修に参加した生徒たちは、授業での英語は得意な生徒たちであるが、外国人と接する機会の少ない本校の生徒にとっては、事前学習でのGSOの方々による英語指導、課題研究ポスター発表での英語プレゼンテーション指導は非常に効果的であった。実際の海外研修では、研修先の研究者の方々からの研究紹介でも、通訳を介さないで内容をしっかり理解し、「科学英語」を実感しながらきちんと質問をすることもできたことで、彼らの大きな自信につながっている。地下鉄や食事の際の日常会話では、会話速度の速さに困難を感じたものの、「科学英語」というものを実感することで英語への学習意欲がより向上した。

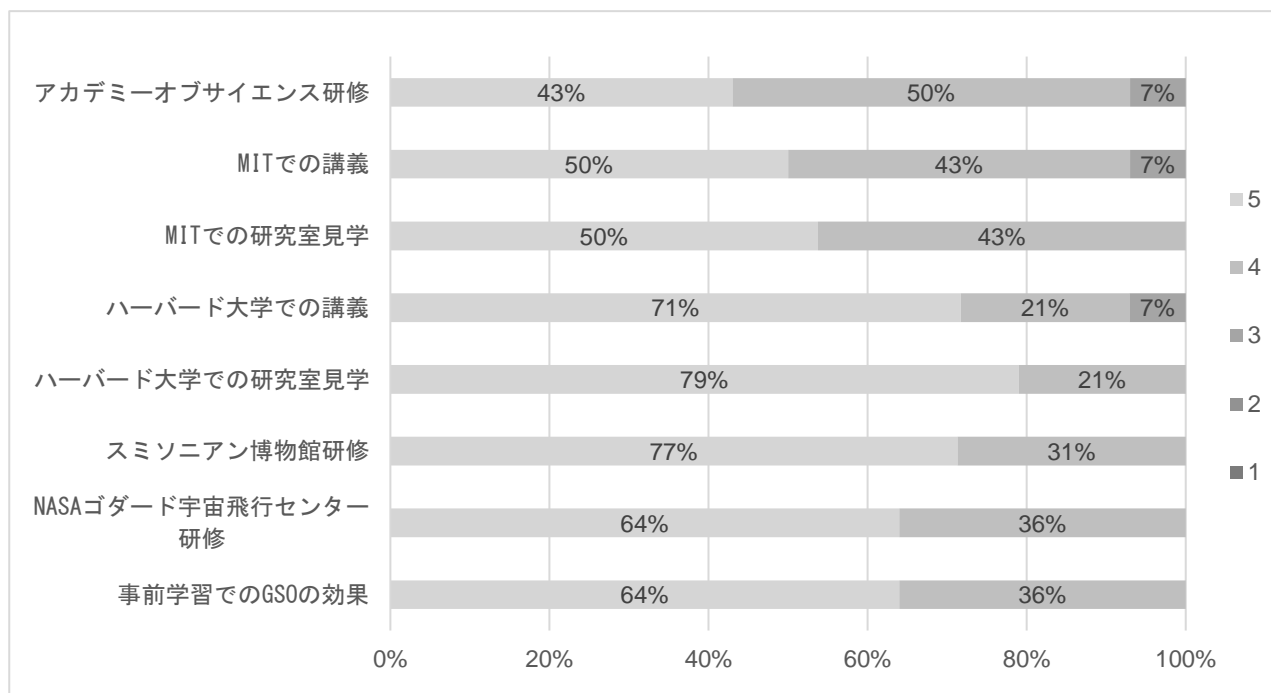
- ・なんとか会話をしようとする積極的な姿勢が身についた。(普通科女子)
- ・自分の英語が現地の人に伝わって自信がついた。(普通科女子)
- ・受験英語からコミュニケーションのツールとして学ぶ姿勢にシフトチェンジできる機会。(理数科男子)
- ・必要なのは自信。スピーキング、リスニングは向上し、積極的に英語を話したいと思った。(理数科男子)
- ・米国では英語しか話していないので、自分の言語かのように話せていた気がした。(理数科男子)
- ・完璧を目指さず、伝えることを重視する方へ思考を変えることができた。(普通科女子)

### ④研修を終えて

海外研修を終えて、生徒たちは様々な刺激を受けており、将来に向けての抱負やビジョンを挙げている。感想の中にも留学を積極的には考えていなかった生徒が、自分のキャリア形成のために留学も視野に入りたいと書いていた。この研修の目的である「グローバル人材として国際的な視野の育成」が十分達成できたと感じる頼もしい感想を生徒たちは書いてくれていた。



## 2 各研修内容について



### ①アカデミーオブサイエンス研修

生徒にとって海外研修で最初に訪れた研修施設で、はじめは緊張している様子であったが、徐々に英語で質問ができるようになった。博物館内や緑化された屋上での講義、標本室まで見学できて非常に有意義な研修となった。

- ・一般の人は見られない施設の裏側が見られたのは良かったが、事前にもっと知識を入れておくべきだった。(普通科男子)
- ・展示している物のレベルも非常に高く興味深いもので、ガイドの大学生の説明もとても分かりやすく面白かった。(理数科男子)
- ・紹介してくださるものは迫力のあるものが多かった。(普通科男子)

### ②MITでの講義と研修

MITで午前中、大学院生による講義を受けた。研究内容や留学について、ご自身の経験を含めてお話をいただいた。留学に対する考え方、留学中の海外での生活など、今まで知り得なかったことを多く学ぶことができたのは大きな収穫だったように思われる。積極的に質問する姿も頼もしく見えるようになっていった。午後の研究室見学までの時間を利用して、MITキャンパス内の学生に事前研修で作成しておいたアンケートを実施した。積極的に声をかけてアンケートをお願いし、英語コミュニケーションに次第になれていく様子が感じられた。

- ・文系にも理系にも興味を持てる内容でよかった。(普通科女子)
- ・経済格差の問題を理系の視点で攻めている点が新鮮だった。(普通科女子)
- ・学んだことは複眼性を持つこと。日本でも外国でも変わらず必要なことだ。(普通科女子)

### ③MITでの研究室見学

一昨年と比べると「5」評価が減少している。人文コースの生徒も参加者の中にいたことも理由の1つと思われる。しかし、研究室見学中の生徒たちは、普通科人文コース、自然コース、理数科という所属に関係なく、積極的に興味を持ったことを質問し、人文コースの生徒のほうが積極的に英語で質問する場面も多く見られた。

- ・現地の大学生の話は丁寧でわかりやすく、専門的なことは日本語で説明してもらえ深く理解できた。(普通科女子)
- ・科学を使って他人を助けるために研究しており、それが学問に臨む態度の規範ではないかと思う。(普通科男子)

### ④ハーバード大学での講義

ハーバード大学メディカルスクールでは、歯学部の研究内容や留学の意義等についても講義を受けた。海外留学について、特に医学系の大学への進学についての詳しい説明もあり、留学の希望を強くした生徒もいた。大学生と一緒に授業を受ける場面を想像していた生徒もいたようで、ハーバードの学生と授業を受講したかったとの感想もあった。

- ・漠然と留学したいと考えていたのが、必ず留学するという確実な意思へと変化した。(普通科女子)
- ・留学までの段階に多くの書類審査や面接があることに驚いた。(理数科女子)
- ・海外留学の的確な説明を受けて、海外進出への壁が取り払われた。(理数科男子)
- ・”日本を再発見できる”、”広い視野を身につけることができる”という留学の意義を聞いて、留学を試みたいと思うようになった。(普通科女子)

### ⑤ハーバード大学での研究室見学

ハーバード大学歯学部のラボを見学させていただくことができた。それぞれの学生、研究者に与えられる研究スペースが日本の大学とはかなり異なっており、興味深かった。骨の形成過程について説明を受けることもでき、世界最先端の研究施設の見学できたことは生徒にとって大きな経験だった。

- ・普段見られない研究室の内部や研究道具を見ることが出来、良かった。(理数科女子)
- ・骨粗鬆症の研究を見学したが、着眼点が思いもよらないものだった。(普通科女子)

### ⑥スミソニアン博物館研修

非常に高評価の生徒が多い研修である。世界屈指の博物館であり、様々な研究を志望する生徒の要望に応えられる展示内容であった。自然史博物館に充てる時間をもっと増やして欲しいという希望もあった。

- ・自分の目で実際に見ることで得られる感動があった。(普通科女子)
- ・航空宇宙博物館では高校の物理で習ったことが多く面白かった。(理数科男子)
- ・展示物の距離が近く、please touch のシールがついてあるものが多く、衝撃だった。(普通科男子)
- ・多様な分野の展示がしてあったので、幅広い知識がついたと思う。(普通科女子)

### ⑦NASA ゴダード宇宙飛行センター研修

研修先の規定で帯同した通訳が、バス移動中に施設等の説明をしてくれたことで研修にスムーズに入ることができた。今回参加した生徒が例年と比べて少しおとなしい印象であったが、疑問に思ったことを積極的に質問し、熱心にディスカッションを行っていた。

- ・事前研修で習った内容を把握しておくことで、説明の内容をより深く理解できた。(普通科女子)
- ・ゆっくりとした説明でわかりやすいが、気になることはすぐに聞かないと思った以上に早く先に進む。(普通科女子)
- ・ハッブル望遠鏡とジェームズウェブがどう違うかどう工夫しているかよくわかった。(理数科男子)

### ⑧事前研究でのGSOの効果

- ・何事においても他人に左右されず、自分の意見を持って人に伝えることが大切だとわかった。(普通科女子)
- ・自分の考えを英語で伝える表現力が身についたと思う。(理数科女子)
- ・普段の英語の授業では出来ないようなコミュニケーションに特化した活動が出来た。(理数科男子)

## 3 次回に向けて

これまで同様、研修先、研修内容、事前学習でのGSOの活用など、それぞれ高い効果が確認できた。次年度も概ね今回に近い内容で実施する計画であるが、より内容を充実させて有意義な研修にするため、継続して研修内容を改善していく予定である。本研修に関わってくださったすべての方々に感謝申し上げます。

“最後に生徒へ向けた「失敗」というテーマでのエッセイで報告を締めくくりたい”

“It is good to make mistakes, and here’s why. First of all, mistakes are a clear sign that you are trying new things. It’s always good to try new things because when you do this you are growing. If you never try anything new, how can you improve? How can you innovate? The simple answer is, “You can’t.”

Look around you. With very few exceptions, everything you see in your physical world is the result of someone trying something new. I realize that mountains and clouds and birds aren’t necessarily the result of someone trying something new, but work with me here. Every single detail of every single thing is the result of someone trying something new.

Another good thing about mistakes is this: when you are making mistakes, you are learning. At least you better be learning! Consider this: Edison failed 10,000 times before he perfected the light bulb. When asked how it felt to fail that many times, he remarked that he hadn’t failed 10,000 times, but rather had learned 10,000 things that didn’t work.

Finally, when you make a mistake, you are much closer to success. Why? Because when all is said and done, you will have tried some finite number of things before you succeeded. Every time you made a mistake, you eliminated one of those things and were one step closer.

Realize that whatever you are trying probably won’t be perfect the first time; that’s life. But it doesn’t mean you shouldn’t try! Only by embracing and using your mistakes in this way can you make significant advances in your life.

There is an old axiom that goes, “If you’re not making mistakes, you’re not trying hard enough.” So go forth and make mistakes. And learn. And grow. And prosper. And feel good in the knowledge that you are trying.”