



**MOD-TRANSMISSION OF TACIT SKILLS IN EAST ASIAN
GRADUATE SCIENCE TRAINING PROGRAMS
(For Taiwanese Graduate Students)**

RESPONDENT IDENTIFICATION

NAME OF RESPONDENT (NOT TO BE CODED): _____

RESPONDENT ID NUMBER:

DATE (MM-DD-YY): - -

INTERVIEWER NAME: _____

TIME INTERVIEW BEGAN: _____ TIME INTERVIEW ENDED: _____

UNIVERSITY: _____

DEPARTMENT: _____

LABORATORY: _____

JOB TITLE: INSTRUCTOR
 SENIOR GRAD STUDENT JUNIOR GRADUATE STUDENT
 SOPHOMORE GRAD STUDENT FRESHMAN GRAD STUDENT

YEAR YOU JOINED THIS UNIVERSITY? ____

HOW MANY YEARS DID YOU SPEND OUTSIDE TAIWAN FOR GRADUATE TRAINING (INCLUDE POST DOCTORAL TRAINING)? _____

EDUCATION

Degree	Field	Institution	Country	Year Obtained/Expected
Ph.D./D.Sc.				
M.Sc./M.A.				
B.Sc./A.B.				

PERSONAL INFORMATIONWhat is your year of birth?

What is your father's main occupation?

- 1=Laborer/Farmer/Worker 2=K-12 Teacher 3=Civil Servant
 4=Nurse/Medical/Physician 5=Researcher/Professor/Scientist 6=Extension officer
 7=Business/Merchant/Shopkeeper 8=Houseperson 9=Other, specify _____

Are you married, single, divorced, separated, or widowed?

- 1=married 2=single 3=divorced 4=separated 5=widowed

If married, what is your spouse's main occupation?

- 1=Farmer 2=K-12 Teacher/Educator 3=Civil Servant
 4=Nurse/Medical/Physician 5=Researcher/Professor/Scientist 6=Extension officer
 7=Business/Merchant/Shopkeeper 8=Houseperson 9=other, specify _____

Do you have children? 1=Yes 2=No

If YES:

How many children do you have? _____

How many are currently living/staying with you? _____

PROFESSIONAL TIME ALLOCATION: We'd like to know how your professional time is divided between research, teaching, administration, and community service. [CLARIFICATION: WE MEAN YOUR ACTUAL TIME, NOT YOUR OFFICIAL TIME]

About what percentage of your time is spent on research? _____%About what percentage of your time is spent on teaching? _____%About what percentage of your time is spent on administration? _____%About what percentage of your time is spent on community service? _____%**TOTAL = 100%****PERSONNEL**Are there any people in this department that you supervise? 1=Yes 2=No

If YES: how many of each of the following people are you currently responsible for supervising?

- ____ Professional scientists
____ Research associates/lab technicians
____ Doctoral students
____ Masteral students
____ Undergraduate students
____ Non-technical staff

Are there people in this department with whom you work closely? 1=Yes 2=No

If working closely with someone, how many of each of the following people in your own department do you work closely? By this I mean those with whom you currently discuss projects on a regular basis.

- ____ Professional scientists (Note: may not be applicable if respondent is a graduate student)
____ Research associates/lab technicians
____ Doctoral students
____ Masters students
____ Undergraduate students
____ Non-technical staff

RESEARCH PROJECTS

We are interested to know something about your main research projects and activities.

Currently, what is your main area of research and/or professional interest? _____

Could you please briefly give the title of each of your most important current projects? *EXPLAIN IF NECESSARY.*
We'd also like to know if each one is collaborative (that is, done in cooperation with someone in another department or organization) and where your collaborators are located. Please give up to a *MAXIMUM OF THREE PROJECTS ONLY.*

FIRST PROJECT (IF ANY):

Is this a collaboration? 1=Yes 0=No

If YES, where are your collaborators located? (Check boxes for all that apply)

- 1=in this location 2=in other locations in Taiwan
 3=in Australia 4=in the United Kingdom
 5=in the United States 6=in another country, please specify: _____

What month and year did this project start? Month: _____ Year: _____

SECOND PROJECT (IF ANY):

Is this a collaboration? 1=Yes 0=No

If YES, where are your collaborators located? (Check boxes for all that apply)

- 1=in this location 2=in other locations in Taiwan
 3=in Australia 4=in the United Kingdom
 5=in the United States 6=in another country, please specify: _____

What month and year did this project start? Month: _____ Year: _____

THIRD PROJECT (IF ANY):

Is this a collaboration? 1=Yes 0=No

If YES, where are your collaborators located? (Check boxes for all that apply)

- 1=in this location 2=in other locations in Taiwan
 3=in Australia 4=in the United Kingdom
 5=in the United States 6=in another country, please specify: _____

What month and year did this project start? Month: _____ Year: _____

YOUR PROJECTS IN GENERAL:

Total number of research projects you are currently involved in: _____

Total number of research projects you are currently directing (role as principal investigator): _____

Since 2005, how many collaborative projects have you been involved in? _____

PROBLEMS ENCOUNTERED IN CURRENT RESEARCH:

If each of the following is a problem for you in any of your current research, please rate this on a scale of 1 to 5 with 1 indicating not a problem and 5 indicating a major problem:

1. Contacting people when they are needed	1	2	3	4	5
2. Coordinating schedules	1	2	3	4	5
3. Length of time to get things done	1	2	3	4	5
4. Transmitting information	1	2	3	4	5
5. Getting others to see your point	1	2	3	4	5
6. Data management and security of information	1	2	3	4	5
7. Resolving conflicts	1	2	3	4	5
8. Decisions on a division of work	1	2	3	4	5
9. Heavy administrative demands	1	2	3	4	5
10. Heavy teaching load	1	2	3	4	5

RESOURCES FOR RESEARCH

Are the equipment needed to do your research available? 1=Yes 0=No

...how about the supplies and resources you need? 1=Yes 0=No

...how about the professional staff you need? 1=Yes 0=No

...how about the support staff you need? 1=Yes 0=No

PROFESSIONAL ACTIVITIES

In answering the following questions, please think as far back as 2007.

Are you a member of any professional organizations? 1=Yes 0=No

Have you served on the editorial board of a journal? 1=Yes 0=No

Have you held a position in a professional organization? 1=Yes 0=No

Have you been a member of a government committee or advisory group? 1=Yes 0=No

Have you served as a consultant within your professional field? 1=Yes 0=No

Have you been to any training courses during this period? 1=Yes 0=No

In one way or another, have you reviewed a manuscript for a journal? 1=Yes 0=No

RESEARCH TIME

In a typical week, how many hours do you spend doing lab work _____

In a typical week, how many hours do you spend doing research? _____

In a typical week, how many hours do you consult with your professor?*

In a typical week, how many hours do you spend writing papers? _____

In a typical week, how many hours are you supervised by your professor?*

REPORTING FOR WORK, BREAK TIME, VACATIONS

Typically, what time do you come to office? _____

Typically, what time do you go home? _____

Once home, do you come back to office after dinner? 1=Yes 0=No

Typically, what time do you go for tea and/or coffee breaks? _____

On average, how long would short break (tea and/or coffee) times be? _____ (record number of minutes)

Typically, what time do you go for lunch? _____ (time)

On average, how long do you go out for lunch? _____ (record number of minutes)

In a year, about how many days do you go for vacation? _____ (record number of days)

RESEARCH SKILLS

I would like to know about the three most important research skills for you to do your work. I would also like to know how you acquired these skills.

Research Skills	How long did it take you to learn this skill?	Who taught you?
1.		
2.		
3.		

RESEARCH PRODUCTIVITY

Since 2007, have you presented papers and/or posters in conferences? 1=Yes 0=No

If yes,How many did you present at national conferences? _____How many did you present at international conferences? _____

Since 2007, have you published a paper? 1=Yes 0=No

If yes,

How many are articles in international journals? _____

How many are articles in national journals? _____

How many are articles in top journals? _____

How many are chapters in books? _____

Since 2007, have you received any science/research awards? 1=Yes 0=No

If yes,

How many are national science/research awards? _____

How many are international science/research awards _____

Since 2007, have you received any research grants? 1=Yes 0=No

If yes,

How many are funded by your university? _____

How many are nationally funded grants? _____

How many are internationally funded grants? _____

Since 2007, how many patents have you generated? _____

In the last 12 months, how many manuscripts (published or unpublished) have you written? _____

PROFESSIONAL MEETINGSSince 2007, have you attended any professional meetings? 1=Yes 0=No**If yes,**

How many professional meetings have you attended? _____

How many meetings have you attended within Taiwan? _____

How many meetings have you attended *outside Taiwan but within Asia*? _____How many meetings have you attended *outside Asia*? _____**IMPROVING YOUR GRADUATE SCIENCE PROGRAM**

Think of the following 9 items, how would you rank their importance for improving graduate science programs in Taiwan? Give a number from 1 to 9, where 1 is most important and 9 is least important. Do not use any number more than once. (**Note: You may ask respondent to fill out the numbers himself/herself.**)

1. Internationally competitive salaries for professors/researchers/scientists _____

2. Seed money for start-up research _____

3. Electronic data bases/library/equipment budget _____

4. Budget for conference travel _____

5. Budget for communication _____

6. Training budget for technicians and research personnel _____

7. Assistantship/scholarships for graduate students _____

8. Recruitment of international graduate students _____

9. Recruitment of professors from abroad _____

COMPUTER USEAT HOME/APARTMENT/DORM (**NOT IN THE LAB**):

In a typical week, about how many hours do you use a computer for your research? _____

How many computers/laptops do you have at home? _____

How many people use a computer/laptop at home? _____

How many of home computers are Internet connected? _____

How old is your computer? _____

When was the last time you did computer upgraded? _____

AT THE LABORATORY:

In a typical week, about how many hours do you use a computer for your research? _____

How many computers/laptops do you have at the lab? _____

How many people use a computer/laptop at the lab? _____

How many of these lab computers are Internet connected? _____

CELLPHONE USE

Do you have a cell phone? 1=Yes 0=No

If yes,

In a day, about how many hours do you use your cell phone for research? _____

... about how many calls related to research do you receive? _____

... about how many calls related to research do you make? _____

How many years have you had a cell phone? _____

HAVE YOU EVER DONE THE FOLLOWING ON CELLPHONE?

- 1=Yes 0=No Discuss research with graduate students
- 1=Yes 0=No Discuss research with a professor*
- 1=Yes 0=No Discuss research with my major professor/mentor
- 1=Yes 0=No Discuss research with a colleague in another location in Taiwan
- 1=Yes 0=No Discussed research with a colleague in Asia but outside Taiwan
- 1=Yes 0=No Discussed research with a colleague in the developed countries (e.g. U.S., U.K)
- 1=Yes 0=No Discussed research with a colleague in the developing countries (e.g. Indonesia, Philippines)
- 1=Yes 0=No Discussed proposals with funding agencies

EMAIL USE

FOR THESE NEXT QUESTIONS, THINK ABOUT YOUR TYPICAL WEEK:

How many hours do you spend receiving and sending email? _____

How many email messages do you send?

1 = Less than one a week

2 = Less than two per day

3 = Three to 10 per day

4 = More than ten daily

How many of these messages you send are related to your research?

1 = Less than one a week

2 = Less than two per day

3 = Three to 10 per day

4 = More than ten daily

How many email messages (EXCLUDE JUNK MAIL) do you receive?

- 1 = Less than one a week
- 2 = Less than two per day
- 3 = Three to 10 per day
- 4 = More than ten daily

How many of these messages you receive are related to your research?

- 1 = Less than one a week
- 2 = Less than two per day
- 3 = Three to 10 per day
- 4 = More than ten daily

HAVE YOU EVER DONE THE FOLLOWING ON EMAIL?

- 1=Yes 0=No Discuss research with graduate students
- 1=Yes 0=No Discuss research with a professor*
- 1=Yes 0=No Discuss research with my major professor/mentor
- 1=Yes 0=No Discuss research with a colleague in another location in Taiwan
- 1=Yes 0=No Discussed research with a colleague in Asia but outside the Taiwan
- 1=Yes 0=No Discussed research with a colleague in the developed countries (e.g. U.S., U.K)
- 1=Yes 0=No Discussed research with a colleague in the developing countries (e.g. Indonesia, Philippines)
- 1=Yes 0=No Started a professional relationship with someone you met through email
- 1=Yes 0=No Reviewed a manuscript for journals
- 1=Yes 0=No Discussed proposals with funding agencies
- 1=Yes 0=No Submitted manuscripts for journal

WEB USE

In a typical week, how many hours do you spend navigating the web? _____

In a typical week, how many hours are spent on matters related to your research? _____

WHICH OF THE FOLLOWING HAVE YOU DONE ON-LINE?

- 1=Yes 0=No purchased a product or service for your research
- 1=Yes 0=No created a research project homepage
- 1=Yes 0=No conducted an information search
- 1=Yes 0=No used scientific research data
- 1=Yes 0=No collaborated on a scientific project
- 1=Yes 0=No conducted Internet-based conference or meeting for your research
- 1=Yes 0=No consulted another researcher through on-line telephony (e.g. Skype)
- 1=Yes 0=No found and examined reference materials
- 1=Yes 0=No accessed research reports or scientific papers
- 1=Yes 0=No downloaded research software
- 1=Yes 0=No used an on-line data analysis software

MENTORING PROBLEMS AND WHAT MENTORS DO

The following is a list of problems that graduate students say they experience when working with their advisers. Based on your experience, please evaluate each of these problem areas using the following scale: 1 = not a problem, 5 = major problem.

<u>Problems/Concerns</u>	<u>Rating</u>				
1. Adviser rarely present in the lab	1	2	3	4	5
2. Adviser does not feedback on research work	1	2	3	4	5
3. Adviser uses computer and Internet for non-research purposes	1	2	3	4	5
4. Adviser not maintaining organized laboratory notes and research data	1	2	3	4	5
5. Adviser disrespectful to students	1	2	3	4	5
6. Adviser disrespectful to other professors	1	2	3	4	5
7. Adviser does not give advice on what to do	1	2	3	4	5
8. Adviser not in good relationship with other professors	1	2	3	4	5
9. Adviser not in lab meetings	1	2	3	4	5
10. Adviser does not listen to students opinions	1	2	3	4	5
11. Adviser not sensitive to students' needs	1	2	3	4	5
12. Adviser not interested in students' well-being	1	2	3	4	5
13. Adviser not available for consultations	1	2	3	4	5
14. Adviser difficult to communicate with orally and written	1	2	3	4	5
15. Adviser frequently on trips	1	2	3	4	5

Rate your adviser in terms of the frequency of the following practices using the following scale: 1 = never, 2 = rarely, 3 = often, 4 = very often. Since 2007, how frequently your adviser done the following:

	<u>Rating</u>			
1. Adviser discusses career aspirations and plans with students	1	2	3	4
2. Adviser monitors students' work progress	1	2	3	4
3. Adviser discusses students' concerns and problems about research	1	2	3	4
4. Adviser discusses personal and/or family problems with students	1	2	3	4
5. Adviser co-authors research paper or book chapter with students	1	2	3	4
6. Adviser co-directs research project with students	1	2	3	4
7. Adviser analyzes data and performs calculations side-by-side with students	1	2	3	4
8. Adviser run experiments side-by-side with students	1	2	3	4

- | | | | | |
|--|---|---|---|---|
| 9. Adviser reviews students for general and comprehensive exams | 1 | 2 | 3 | 4 |
| 10. Adviser helps students draft job application letters | 1 | 2 | 3 | 4 |
| 11. Adviser helps students draft their curriculum vitae | 1 | 2 | 3 | 4 |
| 12. Adviser helps students prepare for a job talk or presentation | 1 | 2 | 3 | 4 |
| 13. Adviser helps students search for job positions and announcements | 1 | 2 | 3 | 4 |
| 14. Adviser socializes students to members of the professional community | 1 | 2 | 3 | 4 |
| 15. Adviser gives feedback on students' research and performance | 1 | 2 | 3 | 4 |

GRADUATE TRAINING PRACTICES

Please rate the following practices in terms of their frequency using the following scale:
1 = never, 2 = rarely, 3 = often, 4 = very often. Since 2007, how frequently have you done the following:

Rating

- | | | | | |
|---|---|---|---|---|
| 1. Present research in departmental seminars | 1 | 2 | 3 | 4 |
| 2. Present research in professional conferences (national, regional, international) | 1 | 2 | 3 | 4 |
| 3. Participate in research competitions (national, regional, international) | 1 | 2 | 3 | 4 |
| 4. Attend trainings to enhance research skills and techniques | 1 | 2 | 3 | 4 |
| 5. Organize professional meetings and conferences | 1 | 2 | 3 | 4 |
| 6. Perform data analyses | 1 | 2 | 3 | 4 |
| 7. Write and submit grant proposals | 1 | 2 | 3 | 4 |
| 8. Take the lead in a research lab meeting | 1 | 2 | 3 | 4 |
| 9. Review and comment on manuscripts which you were/are reviewing | 1 | 2 | 3 | 4 |
| 10. Write papers for submission to scholarly journals | 1 | 2 | 3 | 4 |
| 11. Draft letters to the editor for submission of manuscripts | 1 | 2 | 3 | 4 |
| 12. Draft responses to reviewers for revised and resubmitted manuscripts | 1 | 2 | 3 | 4 |
| 13. Visit other laboratories to learn skills and techniques | 1 | 2 | 3 | 4 |
| 14. Draft operating manuals for lab instruments and equipment | 1 | 2 | 3 | 4 |
| 15. Have senior students help junior students in their research | 1 | 2 | 3 | 4 |
| 16. Review and comment on reports and papers produced by the laboratory | 1 | 2 | 3 | 4 |
| 17. Review and critique recently published leading research articles | 1 | 2 | 3 | 4 |

INTERACTION WITH ADVISER

The following is a list of bi-polar adjectives that describes advisers' interactions with their graduate students. Please rate each pair of adjectives based on your own personal experiences as a graduate student.

<i>Formal/Impersonal</i>	-3	-2	-1	0	1	2	3	<i>Informal/Personal</i>
<i>Face-to-face</i>	-3	-2	-1	0	1	2	3	<i>Technology-mediated</i>
<i>Frequent</i>	-3	-2	-1	0	1	2	3	<i>Seldom</i>
<i>One-way</i>	-3	-2	-1	0	1	2	3	<i>Two-way</i>
<i>To look forward to</i>	-3	-2	-1	0	1	2	3	<i>To avoid</i>
<i>Exciting</i>	-3	-2	-1	0	1	2	3	<i>Boring</i>
<i>Quick talks</i>	-3	-2	-1	0	1	2	3	<i>Long discussions</i>
<i>Structured</i>	-3	-2	-1	0	1	2	3	<i>Unstructured</i>
<i>Supportive</i>	-3	-2	-1	0	1	2	3	<i>Adversarial</i>
<i>Friendly</i>	-3	-2	-1	0	1	2	3	<i>Unfriendly</i>
<i>Considerate</i>	-3	-2	-1	0	1	2	3	<i>Inconsiderate</i>
<i>General/Broad</i>	-3	-2	-1	0	1	2	3	<i>Specifics/Detailed</i>
<i>Planned</i>	-3	-2	-1	0	1	2	3	<i>Unplanned</i>

WORKING IN THE RESEARCH LABORATORY

The following is a list of bi-polar adjectives that describes work environment in a research laboratory. Please rate each pair of adjectives based on your own personal experiences in such a setting.

<i>Many things to learn</i>	-3	-2	-1	0	1	2	3	<i>Nothing to learn</i>
<i>Many things to do</i>	-3	-2	-1	0	1	2	3	<i>Nothing to do</i>
<i>Competitive</i>	-3	-2	-1	0	1	2	3	<i>Cooperative</i>
<i>To look forward to</i>	-3	-2	-1	0	1	2	3	<i>To avoid</i>
<i>Exciting</i>	-3	-2	-1	0	1	2	3	<i>Boring</i>
<i>Structured</i>	-3	-2	-1	0	1	2	3	<i>Unstructured</i>
<i>Busy</i>	-3	-2	-1	0	1	2	3	<i>Relaxed</i>
<i>Supportive</i>	-3	-2	-1	0	1	2	3	<i>Adversarial</i>
<i>Friendly</i>	-3	-2	-1	0	1	2	3	<i>Unfriendly</i>
<i>Open communication</i>	-3	-2	-1	0	1	2	3	<i>Close communication</i>
<i>Authoritarian</i>	-3	-2	-1	0	1	2	3	<i>Democratic</i>
<i>Has privacy</i>	-3	-2	-1	0	1	2	3	<i>Has no privacy</i>
<i>Low supervision</i>	-3	-2	-1	0	1	2	3	<i>High supervision</i>

OTHER INFORMATION

What is your nationality?

- (1) Japanese (2) Singaporean (3) Taiwanese (4) Chinese
 (5) Korean (6) others, please specify: _____

What is your religion?

- (1) Catholic (2) Protestant (3) Buddhist
 (4) Muslim (5) Hindu (6) others, please specify: _____

In a typical week, how often do you go to church for mass or religious services?

- (1) Never
 (2) Once a week
 (3) Two to three times a week
 (4) Four to five times a week
 (5) Everyday

INTERVIEWER'S OBSERVATION

Respondent's gender:

- (1) Male (2) Female

What was respondent's initial attitude about being interviewed?

- (1) Very interested
 (2) Somewhat interested
 (3) Indifferent
 (4) Somewhat reluctant
 (5) Very reluctant
 (6) Hard to tell

Was anyone else present during the interview?

- (1) Yes (2) No

How open and forthcoming do you think respondent was about his/her feelings?

- (1) Very open
 (2) Held back somewhat
 (3) Held back a great deal

Did you observe any signs of tension or stress in respondent's behavior?

- (1) Yes (2) No

Where was the interview held?

- (1) Private setting (respondent's own room and not shared with others)
 (2) Semi-private setting (respondent's own room but shared with others)
 (3) Public setting (library, cafeteria, lobby; laboratory)