

HELPING STEM
STUDENTS WITH
DISABILITIES USING
SOFT SKILLS
TRAINING

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CONFERENCE

ALTERNATE TITLE

- AN NSF-FUNDED EXERCISE IN MURPHY'S LAW

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HELPING STUDENTS SUCCEED

- **3-YEAR NSF GRANT FOCUSED ON IMPROVING JOB PLACEMENT RATES FOR STEM STUDENTS WITH DISABILITIES USING SOFT SKILLS TRAINING**
- **PROPOSAL TO NSF RDE PROGRAM IN FALL 2011, PROJECT START JANUARY 2012, PLANNED PROJECT END DECEMBER 2014, ACTUAL PROJECT END???**
- **FOUR ORIGINAL PIs: M, K, L, J**

EMPLOYMENT GAP

- **STEM MAJORS WITH DISABILITIES ARE LESS LIKELY TO GAIN EMPLOYMENT THAN THEIR COUNTERPARTS WITHOUT DISABILITIES**
- **2013 NSF DATA SHOWS 6.5% OF EMPLOYED SCIENTISTS & ENGINEERS HAVE A DISABILITY**

WHY SOFT SKILLS?

- **GROWING AWARENESS AND EVIDENCE FOR SOFT SKILLS AS KEY TO SUCCESS IN THE WORKPLACE**

OUR PROGRAM

- STUDENTS RECRUITED FROM SPRING TO FALL (STEM MAJORS, SENIORS, WITH A DISABILITY)
- BEGINNING IN FALL, STUDENTS PARTICIPATE FOR 1 YEAR IN THE PROGRAM LEARNING ABOUT SOFT SKILLS
- PARTICIPANTS SUPPLIED IPAD TO USE FOR THE YEAR
- PARTICIPANTS WHO COMPLETE PROGRAM KEEP IPAD
- THREE STAGES IN THE PROGRAM:
 - CURRICULAR INTERVENTION
 - MENTORING
 - WORK-BASED LEARNING

FOUR F2F MEETINGS

- **MEETING 1: INTRODUCTION**
- **MEETING 2: DISCUSS WORK & PERSONALITY**
- **MEETING 3: DISCUSS SOCIAL MEDIA**
- **MEETING 4: MEET WITH INDUSTRY MENTORS**

COMMUNICATIONS

- **IPADS FOR EVERY STUDENT**
- **DROPBOX, LINKEDIN, FACEBOOK**
- **ADD TO PRIVATE FACEBOOK GROUP (NEED TO PROTECT IDENTITIES OF STUDENT PARTICIPANTS)**
- **MUCH COMMUNICATION VIA FACEBOOK**
- **EASIER ACROSS TWO CAMPUSES**
- **STUDENTS COMFORTABLE WITH FB**

CURRICULAR INTERVENTION

- **MODULE 1: PERSONAL AWARENESS (ONLINE)**
- **MODULE 2: WORK & PERSONALITY (HYBRID)**
- **MODULE 3: CRITICAL THINKING (ONLINE)**
- **MODULE 4: USE OF SOCIAL MEDIA (HYBRID)**
- **MODULE 5: JOB SEEKING SKILLS (ONLINE)**

PERSONAL AWARENESS

- SELF CONFIDENCE
- SELF ESTEEM
- SELF EFFICACY
- PERCEPTION AFFECTING OUTCOMES

WORK & PERSONALITY

- THE “LUNCH BREAK” TEST
- MYERS-BRIGGS AND CONNECTING TO WORK
- WORDLE ACTIVITY ON 10-15 SELF DESCRIPTORS
- EMOTIONAL INTELLIGENCE

CRITICAL THINKING

- **PROBLEM SOLVING STEPS**
- **CREATIVE PROBLEM SOLVING/THINKING OUTSIDE THE BOX**
- **PRIORITIZING TASKS**
- **TASK ORDER/MULTIPLE SOLUTIONS**

SOCIAL NETWORKING

- SOCIAL MEDIA'S PREVALENCE
- GOOD USES OF SOCIAL MEDIA (YOU CAN STILL BE ON FACEBOOK!)
- PROFESSIONAL PROFILE PICTURE
- GET LINKEDIN
- SCRUBBING [YOUR ONLINE PRESENCE](#)

JOB SEARCH SKILLS

- RESUME CLEANUP
- MOCK INTERVIEWING
- NETWORKING (IN PERSON & ONLINE)
- PROFESSIONAL APPEARANCE

WORK-BASED LEARNING

- TWENTY TO FORTY HOURS AT A LOCATION RELEVANT TO STUDENT
- SUPERVISOR COMPLETES SURVEY AFTERWARDS TO DETERMINE STUDENT'S SOFT SKILL LEVELS

MENTORSHIP

- **STUDENTS ASSIGNED INDUSTRY MENTOR FOR SEVERAL MONTHS CONVERSATION, MOSTLY ONLINE**
- **ONE IN-PERSON MEETING WITH ALL STUDENTS AND MENTORS**

SO THAT WAS THE PLAN...

- HOW DID IT WORK OUT?
- OR RATHER, HOW MANY WAYS DID IT NOT WORK OUT?

- **GRANT FAIL BINGO!**
- **COME UP WITH WAYS THAT THIS GRANT OR ANY GRANT COULD GO WRONG**
- **“PSEUDOREPLICATION AND THE DESIGN OF ECOLOGICAL FIELD EXPERIMENTS” STUART H. HURLBERT. 1984. ECOLOGICAL MONOGRAPHS, VOL. 54(2). QUOTES FROM P. 192:**
- **“DEMONIC AND NONDEMONIC INTRUSION. -IF YOU WORKED IN AREAS INHABITED BY DEMONS YOU WOULD BE IN TROUBLE REGARDLESS OF THE PERFECTION OF YOUR EXPERIMENTAL DESIGNS...BY NONDEMONIC INTRUSION IS MEANT THE IMPINGEMENT OF CHANCE EVENTS ON AN EXPERIMENT IN PROGRESS. THIS SORT OF INTRUSION OCCURS IN ALL EXPERIMENTAL WORK, ADDING TO THE ‘NOISE’ IN THE DATA.”**

YEAR ONE

- SOME RECRUITMENT ISSUES: PREDICTED POPULATION OF OVER 100, HOPED TO RECRUIT 32 FOR CONTROL GROUP, 32 FOR TREATMENT (OVER TWO COHORTS)
- ENDED UP WITH 16 PARTICIPANTS AFTER MONTHS OF RECRUITING AND EXTENDING TO UW-RF
- PI J (CURRICULUM SPECIALIST) LEAVES PROJECT
- CURRICULAR MODULES WORK WELL; STUDENTS NOT DOING HOMEWORK ACTIVITIES
- MENTORING WORKS WELL

YEAR ONE

- ANNUAL REPORT TIME! NSF SWITCHING TO [RESEARCH.GOV](https://www.research.gov); NEED TO LEARN NEW SYSTEM
- NO PROJECT EVALUATION; EXTERNAL EVALUATOR ASSIGNED BY NSF; NO EVALUATION RECEIVED
- IRB RENEWAL NEEDED; INFORMED THREE DAYS PRIOR; RENEWAL APPROVED!
- NSF RDE PROGRAM DIRECTOR LEAVES; NEW PD
- FIRST ANNUAL REPORT REJECTED; NEED MORE INFORMATION

YEAR TWO

- MENTORING ENDS; MENTORS ENJOYED THE WORK

- WORK-BASED LEARNING DELAYED

- START WORK ON PROJECT WEBSITE WITH STUDENT WORKER

- RECRUITING FOR COHORT TWO AND CONTROL GROUP; FEWER THAN 5 ELIGIBLE PEOPLE AT STOUT ARE INTERESTED

- NEED TO FORMALLY REMOVE OUR ORIGINAL EVALUATOR FROM GRANT; NSF SAYS STOUT DOES IT; STOUT SAYS NSF DOES IT; TAKES MORE THAN A MONTH

YEAR TWO

- REJECTED ANNUAL REPORT IS NOW “OVERDUE”; REGULAR EMAILS FROM NSF TO GET IT IN; STILL NO DATA FROM EXTERNAL EVALUATOR AND NO FEEDBACK FROM NSF ABOUT IT
- NEW CONSULTANT FOR WORK-BASED LEARNING PLACEMENT UNABLE TO PLACE STUDENTS
- REVISED ANNUAL REPORT SUBMITTED MAY 28; REJECTED AGAIN JUNE 30; ANOTHER “OVERDUE” EMAIL; RESUBMITTED JULY 29
- NSF ASKING WHAT’S UP WITH REMOVING PI J

YEAR TWO

- STILL RECRUITING BUT NO LUCK
- TRY TO RECRUIT GRAD STUDENT TO DO DATA ANALYSIS; NO LUCK
- UW-RF REFUSES TO LET US RECRUIT WITHOUT IRB APPROVAL BY THEIR IRB
- OCTOBER 2: “ANNUAL REPORT #2 NOW DUE!”
- OCTOBER: IRB ANNUAL RENEWAL OVERDUE BY THREE MONTHS; WARNED OUT OF COMPLIANCE
- J/K! IT WASN'T OUR FAULT. NO PROBLEM

YEAR TWO

- **NSF PROGRAM DIRECTOR LEAVES; NEW PD**
- **TO PAY MENTORS, NEED W-9S FROM EVERYONE;
TAKES TWO MONTHS**
- **GOVERNMENT SHUTDOWN!**
- **FINAL MEETING WITH COHORT ONE; BUT GRADS
OFTEN UNAVAILABLE; OF 15 ONLY 8 ATTEND**
- **PRIMARY PI M LEAVES PROJECT; RETIRES FROM
STOUT**

YEAR THREE! IT'S

ALMOST OVER, RIGHT?

- ANNUAL REPORT OVERDUE!

SUBMIT ONE DAY LATE; REQUIRES PHOTOGRAPHS
BUT HAVE NONE BECAUSE PARTICIPANTS NEED
PRIVACY

- CONTINUE RECRUITING ELECTRONICALLY

- ADD NEW PI TO REPLACE ORIGINAL PI (STOUT'S
JOB? NSF'S JOB?) NSF REFUSES TO ALLOW NEW
PI; HAVE TO ADD AS SENIOR PERSONNEL

- NEW SENIOR PERSONNEL BREAKS ARM

YEAR THREE

- HIRE NEW STUDENT TO CREATE WEBSITE
- STILL NOT ENOUGH PARTICIPANTS TO RUN A SECOND COHORT
- REQUEST SIX MONTH EXTENSION FROM NSF
- NSF TELLS US NO, INDEFINITE EXTENSION UNTIL WE GET THE PROMISED # OF PARTICIPANTS
- GRANT-HOUSING DEPARTMENT BUDGET MANAGER RETIRES; NEW PERSON TAKES OVER

YEAR THREE

- SET UP D2L COURSE FOR COHORT 2,
PARTICIPANTS FROM ACROSS UW-SYSTEM
- EMAIL:
 - ALL STEM DEANS IN SYSTEM
 - ALL DISABILITY OFFICES IN SYSTEM
- START COHORT 2 INTERVENTION WITH 8 STUDENTS

YEAR THREE

- HAVE TO GIVE IPADS TO ALL COHORT 2 STUDENTS;
PI K DRIVES TO MADISON, MILWAUKEE,
PLATTEVILLE, AND STEVENS POINT
- GET EMAIL FROM PERSON IN PA ASKING ABOUT
PROJECT (WOW!)
- TEST RUN OF D2L COLLABORATE: FAIL

YEAR THREE

- COHORT 2 GOING...OK? STUDENTS NOT DOING HOMEWORK/ACTIVITIES OR SUBMITTING DOCUMENTS
- HAVE ~SUCCESSFUL D2L COLLABORATE MEETING WITH FOUR OF THE EIGHT PARTICIPANTS. ONLY VIDEO THAT WORKS IS MINE.
- [RESEARCH.GOV](https://www.research.gov) NOW USES NEW RDEWEB: “IT RECENTLY CAME TO OUR ATTENTION THAT WE DID NOT HAVE YOUR CORRECT E-MAIL ADDRESS IN THE SYSTEM, AND WE APOLOGIZE FOR THE DELAY IN SENDING YOU THE LOGIN INSTRUCTIONS BELOW.”
- EMAIL FROM TASMANIA ABOUT PROJECT!

YEAR...FOUR?

- “ANNUAL REPORT IS NOW OVERDUE!” JAN 1ST
- SET UP MENTORS FOR COHORT 2
- EMAILS FROM RDEWEB: YOU HAVEN'T LOGGED IN OR PUT ANY DATA INTO THE SYSTEM!
- AFTER MANY EMAILS, HUMANS FROM RDEWEB CALL US
- RDEWEB: 1 WEEK TO DEADLINE! 1 WEEK TO DEADLINE!
- NSF: ANNUAL REPORT IS OVERDUE!

YEAR FOUR

- **SUBMIT ANNUAL REPORT FEB 12**
- **TWO PARTICIPANTS ARE AWOL; THREE MENTORS SAY THEY HAVE NEVER BEEN CONTACTED BY THEIR STUDENT**
- **TRY TO UPDATE WEBSITE: STUDENT WORKER DOESN'T KNOW MASTER PASSWORD; NO ONE KNOWS MASTER PASSWORD**
- **PI K'S HUSBAND HAS MASTER PASSWORD; SETS ME UP WITH ACCOUNT**
- **I LEARN WORDPRESS**

YEAR FOUR

- RECRUIT FOR GA FOR DATA ANALYSIS; NEVER GET ONE
- START RECRUITING FOR CONTROL GROUP
- PERSON AT STOUT SEES RECRUITMENT INFO, CHECKS WEBSITE, SEES NO IRB INFORMATION, TELLS IRB
- IRB CHECKS: WE ARE OUT OF COMPLIANCE AGAIN. NO RECRUITMENT CAN HAPPEN.

YEAR FOUR

- **MAR 7: NSF REJECTS ANNUAL REPORT, SEVEN MAJOR ISSUES INCLUDING NO EVALUATION REPORT**
- **NEVER HEARD FROM NSF-ASSIGNED EVALUATOR**
- **MAR 16: ONE-YEAR EXTENSION FORMALLY APPROVED; BUT NO MONEY FOR SALARY ANYMORE**
- **MAR 17: ANNUAL REPORT IS NOW OVERDUE!**

YEAR FOUR

- NEED TO PAY MENTORS BUT NO W-9 FORMS
- NEED TO PAY CONTROL GROUP \$50. CAN'T SEND CHECKS. TRY AMAZON GIFT CARDS. NO ONE KNOWS WHAT TO DO.
- GET BACK INTO IRB COMPLIANCE!
- DIVIDE UP THREE GROUPS OF STUDENTS: ONE FOR EACH PI. TRY TO CONTACT ALL TO GET SURVEY DATA (OUR ONLY REAL DATA).

YEAR FOUR

- NEED TO HAVE STUDENTS SIGN A FORM FOR FORMAL TRANSFER OF IPAD OWNERSHIP; HOW TO GET THESE DONE?
- NEED W-9 INFORMATION FROM CONTROL GROUP IN ORDER TO PAY THEM; HOW TO GET THESE DONE?
- CREATE SURVEYS FOR CONTROL GROUP, TREATMENT GROUP, EMPLOYERS OF BOTH, AND MENTORS

YEAR FOUR

- MENTOR SURVEY WAS NOT IN ORIGINAL IRB PROPOSAL; NEED TO SUBMIT AMENDMENT REQUEST; APPROVED!
- ONE PI TRAVELS TO POINT, MADISON, PLATTEVILLE TO GET SIGNATURES
- PUT SURVEYS INTO QUALTRICS AND CREATE EMAIL GROUPS
- APR 9: ANNUAL REPORT IS OVERDUE!

YEAR FOUR

- OTHER SCHOOL ASKS STOUT IRB IF PROJECT IS APPROVED; NEED TO INCLUDE IRB ON EVERYTHING.

- APR 22: ANNUAL REPORT (REVISED) IS SUBMITTED!

- START COLLECTING DATA FROM CONTROL GROUP (N=9) AND TREATMENT GROUP (N=19). STUDENTS ARE ASKED TO GIVE NAME OF EMPLOYER WHO CAN FILL OUT SURVEY.

- ONE STUDENT REFUSES TO GIVE EMPLOYER NAME; CLAIMS SHE DIDN'T KNOW SHE WOULD NEED TO DO THAT. WE CHECK: ORIGINAL RESEARCH AGREEMENT SHEET DOESN'T MENTION IT.

YEAR FOUR

- COLLECT DATA FROM MENTORS (8 OF 18 RESPOND)
- ANNUAL REPORT REJECTED AGAIN. NEW INFORMATION NEEDED.
- REQUEST MEETING WITH RESEARCH SERVICES; DELAYED AND HINDERED
- AMAZON GIFT CARD IDEA WON'T WORK; BUT WE CAN DO \$50 CHECK

YEAR FOUR

- **MAY 7: ANNUAL REPORT IS OVERDUE! (BTW: THESE EMAILS ARE STILL GOING TO THE TWO PIs WHO LEFT THE GRANT.)**
- **NO, WE CAN'T GIVE \$50 CHECKS**
- **IRB INFO AND NSF DISCLAIMER ADDED TO EVERY WEBPAGE AND DOCUMENT**
- **MAY 27: ANNUAL REPORT SUBMITTED!**

YEAR FOUR

- **MAY 30: ANNUAL REPORT REJECTED!**
- **ONE MINOR CHANGE NEEDED**
- **JUNE 3: WE CAN PAY PEOPLE \$50 WITHOUT SSN!**
- **JUNE 4: ANNUAL REPORT OVERDUE!**
- **RDEWEB: YOU DON'T HAVE A PHOTO RELEASE FORM!**
- **JUNE 10: ANNUAL REPORT SUBMITTED!**
- **HOW DO WE PAY PARTICIPANTS \$50?**

YEAR FOUR

- PARTICIPANTS ARE ACTUALLY COMPLETING THE SURVEYS!
- STILL RECRUITING CONTROL GROUP
- RDEWEB: YOU CAN SEE YOUR GRANT REPORT!
- RESEARCH SERVICES DIRECTOR RETIRES
- PI K RESIGNS FROM STOUT—LEAVES ACADEMIA; CONTRACT RUNS THROUGH AUGUST 2
- MEET WITH NEW DIRECTOR OF RESEARCH SERVICES; NO ONE KNOWS WHAT FINAL NSF REPORT LOOKS LIKE

YEAR FOUR

- CONTINUE GETTING TREATMENT PARTICIPANTS TO COMPLETE SURVEY
- CONTACT EMPLOYERS TO ASK THEM TO COMPLETE SURVEY
- PI K LEAVES FOR THE UKRAINE—WORKING IN AREA WITH VERY LOW CONNECTIVITY
- DEPARTMENT IN CONTROL OF GRANT SAYS THAT WE NEED W-9S FROM STUDENTS OR DEPARTMENT HAS TO PAY FOR ALL iPADS; NO ONE KNOWS WHERE W-9S OR OTHER PAPERWORK FROM PI K ARE

YEAR FOUR

- CLOSE OUT ALL SURVEYS; FINAL TALLY:
 - MENTORS (8 OF 18)
 - TREATMENT GROUP (21 OF 25)
 - CONTROL GROUP (9 OF 9)
 - EMPLOYERS (9 OF 25 AND 2 OF 9)

YEAR FOUR

- **STOUT NEEDS W-9S FOR ALL PARTICIPANTS;
ELECTRONIC WON'T WORK; NEED TO PRINT OUT ALL
W-9s**
- **STILL MISSING LARGE FOLDER OF INFORMATION
FROM PI K—COMMUNICATION FROM UKRAINE
DIFFICULT**
- **NOV 11: RDEWEB EMAIL “THANK YOU FOR
PARTICIPATING; YOU DON'T NEED TO DO ANYTHING
MORE”**
- **WITHOUT W-9S AND OTHER PAPERWORK, DEPT HAS
TO PAY FOR EVERYTHING!**

YEAR...FIVE?

- JAN 1: FINAL REPORT NOW DUE!
- JAN 1: PROJECT OUTCOMES NOW DUE!
- JAN 22: SENIOR PERSONNEL D TRIES TO LOG IN; NEVER WAS ACTUALLY ENTERED INTO GRANT VIA FASTLANE
- PI K CANNOT BE CONTACTED IN UKRAINE; NO CONTACT FOR TWO MONTHS
- JAN 28: DO NOT HAVE TO GET POST-HOC AGREEMENT TO COMPUTER PAPERWORK FROM

YEAR FIVE

- **JAN 30: FINAL REPORT NOW DUE!**
- **MEET WITH RESEARCH SERVICES DIRECTOR ABOUT HOW TO CLOSE THIS UP**
- **CONTACT WITH UKRAINIAN PI!**
- **ASK ORIGINAL PI M ABOUT OLD FILES; HIS COMPUTER WAS WIPED WHEN HE RETIRED**
- **DO DATA ANALYSIS ON TINY AMOUNT OF DATA**
- **MAR 11: FINAL REPORT SUBMITTED!**

YEAR FIVE

- **APR 7: PI K IN UKRAINE RECEIVES HUNDREDS OF UNSENT BACK EMAILS FROM STOUT SERVER**
- **MAY 23: STILL HAVEN'T HEARD IF FINAL REPORT IS ACCEPTED**
- **THESE ARE ONLY THE PROBLEMS I CAN SHARE IN PUBLIC**
- **SO WHAT DID WE LEARN?**

RESULTS

- **STUDENTS IN TREATMENT GROUP UNDERRATED THEIR SOFT SKILLS AS COMPARED TO THEIR EMPLOYER'S RATING**
- **TREATMENT GROUP MORE CONFIDENT IN SOCIAL MEDIA SKILLS AND JOB READINESS SKILLS THAN CONTROL GROUP**
- **TREATMENT GROUP HAD HIGHER RATE OF EMPLOYMENT THAN CONTROL GROUP (24% UNEMPLOYED VS 33% UNEMPLOYED)**

RESULTS

- **RECRUITING STUDENTS WITH DISABILITIES IS EXTREMELY DIFFICULT; OTHER GRANTS HAVING PROBLEM TOO**
- **STUDENTS WARY OF HAVING THEIR DISABILITY STATUS SHARED WITH OTHERS**

RESULTS

- I WILL NEVER EVER EVER PARTICIPATE IN AN NSF GRANT AGAIN
- I WILL INFORM OTHERS ABOUT THE THINGS THAT CAN GO WRONG

NEXT STEPS

- **BONFIRE! BURN ALL COPIES OF OUR PROPOSAL**
- **SHARE OUR STORY**
- **TRY TO WRITE UP AN ARTICLE OR TWO WITH
PROCESS/RESULTS**

■ **THANK YOU!**