

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./CLOSING DATE/if not in response to a program announcement/solicitation enter NSF 14-1					FOR NSF USE ONLY	
NSF 14-577			10/09/14		NSF PROPOSAL NUMBER	
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)					1501999	
DUE - ATE-Targeted Research on Technician Education						
DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION	
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EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)		SHOW PREVIOUS AWARD NO. IF THIS IS <input type="checkbox"/> A RENEWAL <input type="checkbox"/> AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, LIST ACRONYM(S)		
593102112						
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE			ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE			
University of South Florida			University of South Florida 3702 Spectrum Blvd. Tampa, FL. 336129446			
AWARDEE ORGANIZATION CODE (IF KNOWN)						
0015370000						
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University of South Florida			University of South Florida 4202 E. Fowler Ave. CPR 107 Tampa ,FL ,336205650 ,US.			
IS AWARDEE ORGANIZATION (Check All That Apply) (See GPG II.C For Definitions)		<input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> FOR-PROFIT ORGANIZATION		<input type="checkbox"/> MINORITY BUSINESS <input type="checkbox"/> WOMAN-OWNED BUSINESS		<input type="checkbox"/> IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE
TITLE OF PROPOSED PROJECT PathTech Florida: Constructing a National Survey of Engineering Technology Studetns through Regional and Statewide Testing						
REQUESTED AMOUNT \$	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE			
730,044	36 months	09/01/15				
THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW						
<input type="checkbox"/> BEGINNING INVESTIGATOR (GPG I.G.2)		<input type="checkbox"/> HUMAN SUBJECTS (GPG II.D.7) Human Subjects Assurance Number _____ Exemption Subsection _____ or IRB App. Date _____				
<input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C.1.e)		<input type="checkbox"/> INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED (GPG II.C.2.j)				
<input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION (GPG I.D, II.C.1.d)						
<input type="checkbox"/> HISTORIC PLACES (GPG II.C.2.j)						
<input type="checkbox"/> VERTEBRATE ANIMALS (GPG II.D.6) IACUC App. Date _____ PHS Animal Welfare Assurance Number _____		<input checked="" type="checkbox"/> COLLABORATIVE STATUS				
<input checked="" type="checkbox"/> FUNDING MECHANISM Research - other than RAPID or EAGER		Not a collaborative proposal				
PI/PD DEPARTMENT		PI/PD POSTAL ADDRESS				
Sociology		4202 E. Fowler Avenue CPR 107 Tampa, FL 336205550 United States				
PI/PD FAX NUMBER						
813-974-6455						
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CO-PI/PD						
CO-PI/PD						
CO-PI/PD						

CERTIFICATION PAGE

Certification for Authorized Organizational Representative (or Equivalent) or Individual Applicant

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), drug-free workplace, debarment and suspension, lobbying activities (see below), nondiscrimination, flood hazard insurance (when applicable), responsible conduct of research, organizational support, Federal tax obligations, unpaid Federal tax liability, and criminal convictions as set forth in the NSF Proposal & Award Policies & Procedures Guide, Part I: the Grant Proposal Guide (GPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

Certification Regarding Conflict of Interest

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of AAG Chapter IV.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

Drug Free Work Place Certification

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent), is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Grant Proposal Guide.

Debarment and Suspension Certification

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?

Yes

No

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Grant Proposal Guide.

Certification Regarding Lobbying

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.

Certification for Contracts, Grants, Loans and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Certification Regarding Nondiscrimination

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Grant Proposal Guide.

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Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

- (1) community in which that area is located participates in the national flood insurance program; and
- (2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

- (1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
- (2) for other NSF grants when more than \$25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

Certification Regarding Responsible Conduct of Research (RCR)

(This certification is not applicable to proposals for conferences, symposia, and workshops.)

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Part II, Award & Administration Guide (AAG) Chapter IV.B., the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

CERTIFICATION PAGE - CONTINUED

Certification Regarding Organizational Support

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that there is organizational support for the proposal as required by Section 526 of the America COMPETES Reauthorization Act of 2010. This support extends to the portion of the proposal developed to satisfy the Broader Impacts Review Criterion as well as the Intellectual Merit Review Criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

Certification Regarding Federal Tax Obligations

When the proposal exceeds \$5,000,000, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal tax obligations. By electronically signing the Certification pages, the Authorized Organizational Representative is certifying that, to the best of their knowledge and belief, the proposing organization:

- (1) has filed all Federal tax returns required during the three years preceding this certification;
- (2) has not been convicted of a criminal offense under the Internal Revenue Code of 1986; and
- (3) has not, more than 90 days prior to this certification, been notified of any unpaid Federal tax assessment for which the liability remains unsatisfied, unless the assessment is the subject of an installment agreement or offer in compromise that has been approved by the Internal Revenue Service and is not in default, or the assessment is the subject of a non-frivolous administrative or judicial proceeding.

Certification Regarding Unpaid Federal Tax Liability

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal Tax Liability:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has no unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

Certification Regarding Criminal Convictions

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Criminal Convictions:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has not been convicted of a felony criminal violation under any Federal law within the 24 months preceding the date on which the certification is signed.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE		SIGNATURE		DATE
NAME Michelle Phillips		Electronic Signature		Oct 9 2014 5:27PM
TELEPHONE NUMBER	EMAIL ADDRESS mphilips@usf.edu		FAX NUMBER	

NATIONAL SCIENCE FOUNDATION
Division of Undergraduate Education

NSF FORM 1295: PROJECT DATA FORM

The instructions and codes to be used in completing this form are provided in Appendix II.

1. **Program-track** to which the Proposal is submitted: **ATE-Targeted Research on Technician Education**

2. Name of **Principal Investigator/Project Director** (as shown on the Cover Sheet):

Tyson, William

3. Name of submitting **Institution** (as shown on Cover Sheet):

University of South Florida

4. **Other Institutions** involved in the project's operation:

Hillsborough Community College

Project Data:

A. Major Discipline Code: **58**

B. Academic Focus Level of Project: **LO**

C. Highest Degree Code: **D**

D. Category Code: **R**

E. Business/Industry Participation Code: **NA**

F. Audience Code: **WMH** _ _ _ _ _

G. Institution Code: **PUBL** _ _ _ _ _

H. Strategic Area Code: _ _ _ _ _

I. Project Features: _ _ _ _ _

Estimated number in each of the following categories to be directly affected by the activities of the project during its operation:

J. Undergraduate Students: **1200**

K. Pre-college Students: **0**

L. College Faculty: **60**

M. Pre-college Teachers: **0**

N. Graduate Students: **0**

PROJECT SUMMARY

Overview:

The Florida Advanced Technological Education (FLATE) Center and researchers from the University of South Florida's Department of Sociology and College of Education propose to develop a survey instrument that measures the pathways, career goals, and school-work-life balance of individuals completing engineering technology (ET) coursework, certification, and AS/AAS degree programs in community colleges. The survey will be developed and pilot tested on a local level, then be distributed statewide, and eventually be widely disseminated for use at the national level to better understand the life experiences of students not only within ET programs in Florida, but within other programs and contexts. Because a large majority of ET participants within community colleges are adults with numerous and complex life challenges (i.e., family, personal, school, and work), an investigation into their lived experiences is necessary to provide institutional supports to accommodate their success. Within that context, the proposed research will respond to the following questions:

1. Who are engineering technology students with respect to their demographic backgrounds (gender, race, socioeconomic status, age)?
2. What courses are engineering students taking? What specific benefits do students report they have earned or will earn from taking these courses with respect to educational attainment and employment outcomes?
3. How do ET students navigate community college and cycle between their classes, work, family, personal/social experiences? Are there differences between subgroups such as women, underrepresented minorities, veterans, incumbent workers, and the long-term unemployed?

Intellectual Merit :

Findings from the proposed research will provide community college administrators and faculty with a better understanding of the students they serve in terms of their unique lived experiences and challenges as they navigate the higher education landscape as a path to a better life. Further, this research will make theoretical contributions to STEM program research by introducing concepts from the adult education and counseling literature to explore the lived experiences of urban adult learners.

Broader Impacts :

FLATE provides individuals with opportunities to pursue their educational and career goals at ten community/state colleges across the state of Florida. This study will examine how those individuals successfully navigate participation in ET programs while balancing their own personal challenges inherent in juggling multiple roles and responsibilities (i.e., student, worker, parent). Findings will provide researchers and practitioners across the nation with an instrument tool to identify the demographics and life experiences of students in their programs for the purpose of accommodating their diverse learning needs. We will also impact a broad audience by disseminating our findings to STEM education researchers, practitioners, policymakers, and the general public.

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Table of Contents	1	_____
Project Description (Including Results from Prior NSF Support) (not to exceed 15 pages) (Exceed only if allowed by a specific program announcement/solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)	14	_____
References Cited	2	_____
Biographical Sketches (Not to exceed 2 pages each)	8	_____
Budget (Plus up to 3 pages of budget justification)	12	_____
Current and Pending Support	4	_____
Facilities, Equipment and Other Resources	2	_____
Special Information/Supplementary Documents (Data Management Plan, Mentoring Plan and Other Supplementary Documents)	4	_____
Appendix (List below.) (Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)	_____	_____
Appendix Items:		

*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

Introduction

The Florida Advanced Technological Education (FLATE) Center and researchers from the University of South Florida Department of Sociology and College of Education propose to develop a **survey instrument** that measures the **pathways, career goals, and school-work-life balance** of individuals completing engineering technology (ET) coursework, certification, and AS/AAS degree programs in community colleges.

Technicians earn above average wages, secure stable employment with opportunities for promotion, accomplish important societal milestones, and achieve middle-class status in jobs critical to our economy (Carnevale, Smith, & Strohl, 2010). To meet these goals, technicians often **cycle between school and work to re-skill** in order to meet economic demands for a highly skilled workforce (Adkisson & Monaghan, 2014). Cycling requires constant movement between **life course transitions** such as marriage and romantic relationships, parenthood, and work transitions such as unemployment, job changes, and promotions. Furthermore, social class, race/ethnicity, gender, geography, and societal norms influence expectations for educational and occupational attainment. Studies that are limited to one dimension such as training, job experience, or work-life balance, cannot fully examine **complex interactions between school, work, family, and the economy** and how individuals are nested in each of these spheres throughout the life course. For this reason, we address the following *central research questions*:

1. Who are engineering technology students with respect to their demographic backgrounds (gender, race, socioeconomic status, age)?
2. What courses are engineering students taking? What specific benefits do students report they have earned or will earn from taking these courses with respect to educational attainment and employment outcomes?
3. How do ET students navigate community college and cycle between their classes, work, family, personal and social experiences, and possibly other schooling? Are there differences between subgroups such as women, underrepresented minorities, veterans, incumbent workers, and the long-term unemployed?

The proposed survey is the **second phase** of a *partially mixed sequential equal status research design*, a mixed methods approach in which qualitative and quantitative phases take place sequentially with each having equal weight (Leech & Onwuegbuzie, 2009). The **first phase** is an ongoing NSF ATE Targeted Research in Technician Education project in which qualitative data collected through face-to-face and phone interviews with ET students informed the construction of explanatory models of their **pathways, career goals, and school-work-life balance**. In this second phase, we propose the development of a survey instrument to assess the non-linear, cycling pathways of adult urban students in ET programs uncovered in the first phase.

The survey instrument will be based on the **PRISM Decision Model for Adult Enrollment** (Stein & Wanstreet, 2006), **Schlossberg's Transition Theory** (Schlossberg, 1984), **explanatory models** from the first phase, and **input from ET educators** throughout Florida. The survey will be constructed in three parts: (1) regional pilot testing among ET students at three Tampa Bay area community colleges; (2) statewide reliability testing and (3) statewide final survey both among ET students at community colleges throughout Florida. The end products of this project will be a

FLATE/PathTech national survey of ET students, a best practices booklet, and webinar on promoting successful ET pathways. These products will be available for ATE Centers and Project teams upon completion of the project.

Our research goal is to identify the characteristics of ET community college students, their academic pathways, career goals, and school-work-life balance issues that impact their decisions to initially enroll in ET courses, return for further ET coursework, and/or pursue a certificate or degree. We seek to determine the generalizability of qualitative phase findings beyond open-ended interviews and establish the infrastructure to promote the scalability of survey-informed models to explain **pathways, career goals, and school-work-life balance** among technician education students throughout the United States.

Results of Ongoing NSF Funded Research

The proposed PathTech Florida study is a direct sequel to PathTech (“Successful Academic and Employment Pathways in Advanced Technologies” #1104214). Through Years 1-3 of PathTech, we actively engaged in data collection with students and key personnel in Tampa Bay high schools, community colleges, and industry. Specifically, we interviewed students, faculty, and administrators within four Tampa Bay ET programs at Hillsborough Community College, St. Petersburg College, Polk State College, and State College of Florida. We also administered short surveys to ET students to learn more about their socio-demographic backgrounds, marital and caregiving status, education attainment, funding sources of their ET degree, and parental education attainment. We also interviewed students, teachers, and administrators at local high schools and employers from local businesses in the corresponding Hillsborough, Pinellas, Polk, and Sarasota/Manatee counties. Currently in Year 4, we are preparing manuscripts based on PathTech findings.

Explanatory frameworks based on the socio-demographic survey and interviews revealed: (1) Individuals from **diverse academic and employment backgrounds** have disparate goals for their ET enrollment, but believe ET courses and/or credentials will **greatly enhance their career prospects** and be **a transformative force** on their lives. (2) Students are encouraged to enroll in ET courses through their **inclination for hands-on work** and previous **ET-related educational and work experiences**, information learned from **word of mouth, program websites, and recruiters** (particularly true for veterans), and desire for **career stability** and **a better life**. For many students, the return to school was marked by **job loss** and/or **need for re-skilling** in order to be marketable and valued in the current economy (see Figure 1). (3) ET students transition **between school and work** while experiencing **other life transitions** as well. For example, several older students have **partners and children** and many discuss their need to **provide for their families** as a key element motivating their desire to enter and complete the ET program.

Female ET students were more likely to report serving in a caregiver role to their children or parents, making school-work-life balance an even more salient factor for them. Females reported that it is vital that ET courses are convenient and flexible so that they can accomplish their work, family, and caregiving responsibilities. Females viewed online courses as one positive option; however, they sometimes missed the camaraderie of the classroom. Affordability was also crucial to their decision to continue

ET coursework. Females embraced the challenge of taking mathematics and/or science courses and did not express any doubts about their abilities to excel in these courses. Women and men shared the above motivations for completing ET courses and pursuing ET credentials and were also driven by a desire to gain respect from their male work colleagues and their families.

The PathTech research design is a holistic examination of *pathways* within Tampa Bay that reveals a variety of routes individuals take to obtain an education, get and keep a job, and provide for families in order to grow and mature within a dynamic and evolving global economy. Our findings highlight the need to expand this model for a national research agenda that informs leaders and policymakers about the confluence of pathways and social forces inherent to technician education and workforce development. Applying this knowledge may unlock the tools necessary to support education and employment in ways that will improve the life chances and well-being of the citizenry, and foster progress as an educated and skilled nation.

Literature Review

The majority of students completing ET coursework, certifications, and AS/AAS degree programs in community colleges are adults with complex lives. As such, they have to balance an array of challenges including health, children, and work. These school-work-life challenges can be informed by a body of knowledge related to adult decision-making patterns and adult life transitions, specifically how adults make decisions to enroll in higher education programs of study such as ET.

Adult Decision Making Patterns

Adult learning takes place in a myriad of settings – from highly formal and structured to non-formal and informal learning environments – and includes online modalities as well (Merriam, Caffarella, & Baumgartner, 2007). Adults typically make voluntary decisions to participate in adult education, and for the past three decades, related enrollments have risen – primarily due to the aging population, upswing in female participants in the workforce, growth of immigrant groups, technological advances, and globalization (Kasworm, 2003; Kim, Hagedorn, Williamson, & Chapman, 2004; Merriam et al., 2007). This substantial increase in adult enrollment has compelled higher education programs to adapt their delivery modes and services required to recruit and retain adult students (Kasworm, 2003; Stein & Wanstreet, 2006). Therefore, it is important to understand who decides to participate, motivating factors related to their participation, and the conditions facilitating such decisions, to encourage wider participation, and to better serve participants' needs (Merriam et al., 2007). Adkisson and Monaghan (2014) remind us that “how our culture thinks about particular events as linear, normal, and expected does not always fit with the experiences of every learner, particularly underserved urban adult learners” (p. 25). Adult learners' lived experiences as well as their socio-demographic characteristics (i.e., age, income, and prior work experience) are pertinent to their abilities to access and transition into higher education programs.

To be sure, the motivational factors contributing to adult participation in a wide array of educational activities and programs are varied and quite complex based on individualistic beliefs, intrinsic demands, and extrinsic pressures (Kasworm, 2003). Some of the reasons for participation might be attributed to quests in obtaining

knowledge, skills, and dispositions needed to compete in the workforce; aspirations to earn associates', baccalaureate, or graduate degrees; needs for remediation in order to acquire employability and general competence skills; or desires for them to improve their individual lives (Kim et al., 2004). Although we already know this much about why adults choose to participate in degree programs, there is still widespread concern associated with providing access to, serving the needs of, and promoting the success of racial and ethnic minority students as a pathway to produce skilled workers in science, technology, engineering, and mathematics (STEM) fields within community college degree programs (Hernandez-Gantes & Fletcher, 2013). In fact, community colleges play a substantial role in building the STEM workforce as well as widening opportunities to both youth and a large percentage of returning adults (Wang, 2013). While community colleges serve as the initial entry point into higher education for the majority of underrepresented college students – many who have aspirations to eventually transfer into four-year universities and earn bachelor's degree as well as some who would like to go on and earn graduate degrees (Bensimon & Santiago, 2013) – programs such as Engineering Technology (ET) still suffer from a large shortage of females and racial and ethnic minorities (Digest of Educational Statistics, 2009).

Conceptual Framework

Decision-Making Factors

Stein and Wanstreet (2006) proposed an emerging conceptual model aimed at identifying decision-making factors to predict enrollment by adults into higher education programs (See Figure 1). Stein and Wanstreet's (2006) model identified four primary themes that explain the complex decision-making process adults use to inform their choices to pursue higher education, which was named the PRISM Decision Model for Adult Enrollment.

The first theme, *Pathway to a Better Life*, encompasses adults' assessments of the extent to which their own cognitive and economic conditions might be enhanced as a result of participation in a higher education program. This theme focuses on adults' reflective nature as to whether this is a path that could lead to career advancement providing potential for occupational security within an unstable marketplace. From an economics standpoint, adults contemplate the likelihood in which participation in a degree program would pay off in terms of social status as well as occupational status and earnings. Further, from an intellectual perspective, adult students frequently participate in higher education for their own personal development, to raise their sense of self-esteem in the area of academics, to reengage in educational pursuits which might not have been feasible in their past life stages, or to become more knowledgeable in their fields (Anderson & Swazey, 1998). As a result of successfully completion of an academic degree program, adults often believe that participation in higher education will enhance their status, reputation within their communities, and fortify their pursuits for a better life.

The second theme, *the Reflective Learner*, refers to how students attempt to evaluate their own academic abilities and academic readiness to pursue a degree. That is, adults' decisions to enroll in an academic program may be dependent on their own perceptions of competence, self-efficacy, and effort needed to successfully complete a program of study. According to Hensley and Kinser (2011), "adult learner persistence is

related to several variables, including commitment to the student role, possessing adequate study skills, and possessing clear, focused academic goals” (p. 90). Throughout academic programs, adults often cycle in and out of the educational environment as they contemplate and reflect on their own abilities, strengths and weaknesses, and the degree to which their pathway to a better life is an attainable goal.

The third theme, *Synchronizing Learning, Earning, and Living*, places emphasis on their particular life stage as well as their abilities to balance learning, earning, and living as critical determinants in their decisions to pursue enrollment in higher education. Thus, adults tend to enroll in programs when they perceive equilibrium among educational pursuits, their own financial situation, and their individual life circumstances. Factors associated with a sense of equilibrium include timing, personal resourcefulness, and family obligations.

The fourth theme, *Match with an Academic Life*, stresses the importance of adults seeking a fit with the academic program’s curriculum, policies, requirements, support, and accommodation with adult learners. To this end, institutions that extend student services beyond initial recruitment and orientation events are more likely to be more effective in retaining their students (Polson, 2003). Adult learners consider the degree of accommodation and flexibility in the delivery system as well as fit with their family and work life (Fletcher, 2013).

Transitions

Based within the field of counseling, Schlossberg (1984) discussed the need to help adults explore, understand, and cope with inevitable life transitions. Schlossberg defined a transition as an event or nonevent (i.e., such as the nonoccurrence of an event) which results in transformation. And, the types of transitions include anticipated, unanticipated, chronic challenges, and nonevents. Thus, Schlossberg posited that to fully understand the meaning of individuals’ transitions, requires knowledge of the type of transition, the context in which the transition occurs, and how the transition impacts the individual. She further noted variables which influence transitions, which includes demographics (age, socioeconomic status [SES], health status, etc.), psychological resources (personality, perspective, commitment, values, etc.), and coping mechanisms (meaning of the transition, stress, etc.). Further, an individual’s social support system (partners, family units, networks, friends, institutions, and communities) is pertinent to coping with transitions.

Despite the adult education literature which has sought to determine why adults choose to participate in degree programs as well as research in counseling to help our understanding of life transitions, questions linger regarding how community college degree programs such as engineering technology (ET) can attempt to address the motivating factors of adult urban students enrolling in their programs as well as attend to their transitional challenges from the adult learner’s perspective, which may or may not be in sync with the institutional culture. Merriam (2007) pointed out that the underlying principles of educational institutions and programs within the United States have historically operated from a Eurocentric framework of learning which are undergirded by principles and cultural values related to individuality, autonomy, and independence. This often leads to a cultural mismatch and makes it quite difficult for underrepresented adult learners to manage the transition into a formal learning environment (O’Donnell &

Tobbell, 2007). Within the theoretical framework of adult-decision making and adult developmental transitions, we seek to understand the motivating factors (decision-making process) for entering as well as the issues related to transitioning into and out of ET programs. Based on a better understanding of issues related to these transitions, our objective is to uncover appropriate institutional supports for ET programs at the community college level.

Research Design

The proposed survey is the continuation of a mixed methods research agenda that bridges theory from adult education with explanatory models derived from qualitative research and socio-demographic survey research in ongoing research. This survey will be designed to capture the socio-demographic profile, life stages, life transitions, and motivating factors of students in ET programs at community colleges. The survey components will be developed using the PRiSM Decision Model for Adult Enrollment (Stein & Wanstreet, 2006) and Schlossberg's (1984) adult life transitions conceptual and theoretical frameworks as lens for its design and interpretations. Remaining sections will draw from ongoing research.

The survey will be comprised of five parts. The first part, PRiSM, will include four latent variables: (a) Pathway to a Better Life; (b) the Reflective Learner; (c) Synchronizing Learning, Earning, and Living; and (d) Match with an Academic Life. The second section will use open-ended questions in an attempt to capture information on students' life stages and transitions using Schlossberg's adult transitions theory. The third section will include demographic items (i.e., age, gender, race/ethnicity, socioeconomic (SES) factors, academic discipline within ET, employment status, marital status, number of dependents, prior academic background). The fourth section of the questionnaire will include questions related to participants' ET course-taking. The fifth section will be comprised of a combination of closed- and open-ended questions designed to capture students' lived experiences while participating in ET degree programs as well as their career and educational aspirations.

Data Collection

The survey will be administered online using Qualtrics – an online survey platform system. The online survey will be distributed in three waves: (1) regional pilot testing among ET students at three Tampa Bay area community colleges who participated in the qualitative first stage in the ongoing PathTech project (Hillsborough Community College, St. Petersburg College, and Polk State College); (2) statewide reliability testing and (3) statewide final survey among ET students at community colleges throughout Florida. The timeline below shows the availability of each survey.

The target population includes all Florida community college students enrolled in an ET course, certification program, and/or AS/AAS degree program. According to FLATE (2013) reports, 1,109 students are enrolled in ET AS/AAS degree programs around the state. With the assistance of FLATE, we essentially seek to achieve a survey sample comprised of approximately 50 ET students in the pilot, 450 students in the statewide reliability testing, and ultimately 500 ET students across Florida community colleges for the final survey (which constitutes a 45% response rate). The online survey should take approximately 20 to 30 minutes for participants to complete.

We will collaborate with participating Florida State College System faculty and administrators to determine the most effective way to distribute the online surveys. As part of the survey process, we will obtain informed consent from each student and ensure their confidentiality by assigning identifiers to protect their privacy. Each student will receive a \$20 incentive for completing the survey. The proposed budget includes additional participant costs if we exceed our target sample.

PRiSM Scale

The Pathway to a Better Life latent variable aims to assess the extent to which ET students have decided to pursue a degree in higher education based on their perceived abilities to achieve higher economic, intellectual, social, and occupational statuses. The Reflective Learner sub-scale will reflect students' academic background experiences and how that influences their readiness to pursue a degree. The Synchronizing Learning, Earning, and Living sub-scale will examine how students attempt to balance learning, earning, and living and if those issues were a factor in deciding to enroll. The Match with an Academic Life sub-scale will investigate whether institutional and program support were factors leading to participation. Each item on the questionnaire will be measured using a four-point Likert-scale: "Strongly Disagree", "Disagree", "Agree", and "Strongly Agree". Table 1 shows example survey items from each domain and the matching research question.

Table 1. PRiSM Example Survey Items

Survey Domain	Example Survey Items
Stem: My decision to enroll in the Engineering Program was based on...	
Pathway to a Better Life: (extent to which economic and intellectual circumstances may improve as a result of enrolling in higher education) Research Question 2	<ul style="list-style-type: none"> • advancing in my current job. • seeking security in an insecure job market. • gaining credentials within my profession. • expanding my knowledge in my field. • increasing opportunities for a better life. • securing a higher level of employment. • helping build my technology skills.
Reflective Learner: (the influence of previous academic experiences and an assessment of readiness to enroll in higher education) Research Questions 2, 3	<ul style="list-style-type: none"> • my competence to master academic challenges. • my confidence to master academic challenges. • my performance in prior academic experiences. • my performance in prior academic experiences. • my ability to put forth effort to complete program. • my personality characteristics to do well in program.
Synchronizing Learning, Earning, and Living: (the recognition of life stages and adults' abilities to balance learning, earning, and living) Research Questions 1, 3	<ul style="list-style-type: none"> • timing with other life challenges. • a change in my life stage. • a decrease in other social obligations. • a decrease in financial concerns. • a fit within my life plans. • a decrease in family challenges.
Match with an Academic Life: (the extent to which institutional/program support was a factor in a decision to enroll) Research Questions 2, 3	<ul style="list-style-type: none"> • the support I receive from my institution. • my fit within the institution. • the academic requirements of my institution. • the program's ability to accommodate work. • the flexibility through the delivery system.

Transitions Section

Based on Schlossberg's (1984) adult transitions theory, the transitions section of the instrument will attempt to capture students' life experiences, stages, transitions, and the meaning of the transition to the individual. The items on this section will be open-ended and ask participants to explain educational and career transitions they have experienced recently, what type of transition it was (anticipated, unanticipated, nonevent, chronic hassle), the context of the transition in terms of how it affected them and the setting in which it occurred, the impact of the transition on their relationships, routines, assumptions, and roles, and how they were able to cope with it. More specifically, participants will explain how they navigate community college and cycle between their courses, work, families, personal and social experiences, and possibly other schooling. We will employ thematic content analysis to glean and capture the essence of meaning ET students attributed to their transitions as a result of the responses from the open-ended questions (Boyatzis, 1998). During the process of thematic analysis, we will construct explicit codes/themes deductively based on theory (in this case, Schlossberg's adult transitions theory). Thus, the development of themes will be theory driven (Boyatzis, 1998).

Demographics Section

The demographic section of the instrument will include items such as age, gender, race/ethnicity, socioeconomic (SES) factors, academic discipline within ET, employment status and background, marital status, veteran status, number of dependents, and prior academic background/degrees. Quantitative analyses will allow for descriptive and analytical comparisons of women and Black and Hispanic students to their peers in order to better understand gender and racial differences in educational and employment experiences that lead into technician education programs as well as substantive differences in their achievement and work experience while enrolled in these programs.

ET and High School Coursetaking

The ET course-taking section of the instrument will first be comprised of a list of courses. The participant will indicate whether he or she has taken as well as what grade they earned in the course. Florida College System institutions use a common course numbering system, so courses and content will be standard across institutions. Second, students will indicate their high school math and science/STEM coursetaking and grades earned in those courses as well. Third, the participants will indicate their high school participation in career and technical education and certifications earned as well as participation in an accelerated programs.

ET Student Experiences and Career and Educational Aspirations

The fourth section of the questionnaire will include a combination of closed- and open-ended questions designed to capture students' lived experiences while participating in ET degree programs as well as their career and educational aspirations. Closed-ended questions will include factors/inhibitors leading to ET enrollment (i.e., inclination towards building/fixing things/using their hands, education, and current work experiences), who has influenced (i.e., parent/guardian, other family member, peer,

administrator, teachers/instructors, school counselor, recruiter, website, other) their decision-making process to enroll in ET as a college major instructional items related to how they engaged in coursework, related field experiences/internships, credentials earned or working toward, how they are assessed, and what their educational and career aspirations entail. In addition, open-ended items will include a description of what their experiences have been in the program and specific benefits students earn or will earn from taking ET courses with respect to educational attainment and employment outcomes. Thematic content analysis will be used to analyze the open-ended questions.

Analysis

To determine the association between aspects of identity and lived experiences with motivations, goals, and aspirations of students, we will employ ordinal least squares regression (OLS) and multilevel regression techniques hierarchical linear modeling (HLM) to model the relationship between demographics and background factors and reported outcomes. Both will be used to account for the unique nature of ET students. Multilevel methods are most appropriate for students nested within institutions. Due to the cyclical nature of enrollment in technician education programs and the complex interaction of school, work, and life experiences, it is difficult to assume a student is “nested” within a particular college. In fact, some students may be enrolled in multiple institutions at a given time. With respect to key subgroups, we will use whichever methods are most appropriate in order to make the proper descriptive and analytical comparisons between women and underrepresented minority students to their peers in order to better understand gender and racial differences in educational and employment experiences that lead into technician education programs as well as substantive differences in their achievement and work experience while enrolled in these programs. We will also compare outcomes between veterans, students at various stages of employment/unemployment, and single and married students.

Reliability and Validity

To measure reliability, the research team will use Cronbach’s (1951) coefficient alpha. Chronbach’s alpha is widely used as a measure of reliability and is associated with the proportion of variance in a scale that is based on the true score of the latent variable (DeVellis, 2003). Efforts to establish validity will be pursued as validity measures the extent to which the items in a survey are directly related to the phenomenon of interest (DeVellis, 2003). To establish content validity (extent to which a set of items measures the intended domain), the PRiSM questionnaire will be developed and sent to a panel of experts (FLATE representatives, ET program coordinators, and researchers). The panel of experts will assess the latent variables of the survey for their level of appropriateness. Based on the panel of experts’ recommendations, the research team will clarify, modify, and/or add additional items as necessary.

The research team will also use factor analysis for each latent variable to measure construct validity. Construct validity is the extent to which empirical correlations are directly associated with the intended variable (DeVellis, 2003). Based on the results of the factor analysis, coefficients of 0.70 or higher will be grouped based

on the latent variable and named accordingly. Evaluators from ICF International (ICF) will also aid in determining validity and reliability as described below.

Evaluation Plan

Evaluators from ICF International (ICF) will serve as evaluation consultants to the PathTech Florida research team throughout the course of the targeted research project. ICF will build on knowledge gained from evaluating the implementation of the ongoing PathTech project (NSF #1104214). For the PathTech Florida evaluation, ICF will consult with the research team to evaluate survey construction at the beginning of Year 1 and provide recommendations for maximizing response rates in the Fall and Spring of each year of the project.

ICF evaluators will evaluate the survey construction by looking at the validity and reliability of items using data from the initial pilot survey of Tampa Bay ET students, and then again using data from the pilot survey of Florida ET students. ICF will work with the research team to gather additional information regarding the clarity and conciseness of survey items by conducting follow-up interviews with select pilot survey respondents at each stage. Ultimately, items that prove to be problematic will be revised or deleted. Response data will be analyzed to examine the extent to which each item contributes to the reliability and validity of the questionnaire. The pilot surveys will also provide an opportunity to assess the effectiveness of the survey delivery system. With regard to reliability, ICF will conduct exploratory factor analysis to check the internal consistency of the entire questionnaire and factors (i.e., groups of related items) that may be extracted during this process. Items that are found to reduce reliability will be deleted or revised accordingly.

Throughout each step of survey administration, including both pilots and the full administration, ICF evaluators will consult with the research team to analyze response rates and develop strategies for improving response rates. To encourage participation in the survey the research team will send advance letters to inform the target audience of the pending survey. One administered, reminder emails will be sent to those who do not respond initially. ICF will work to examine the known characteristics of non-respondents to see if they differ significantly from those of respondents. For example, responses to survey items will be analyzed by gender and other characteristics to check for systematic differences between response rates for these groups. If the mean or average response to a particular item or related group of items differs significantly by either of these demographic characteristics, there would be reason to suspect that the item or group of items is biasing the responses of the affected subgroup. If response bias is detected, statistical corrections may be applied and/or a small but represented group of respondents could be asked more probing follow-up questions.

ICF evaluators will write an annual evaluation report documenting findings and recommendations from the evaluation at the end of each of the first two years, and a final evaluation report of findings and considerations for future research at the end of the project.

Project Timeline

The proposed survey will be constructed in three phases: (1) a pilot survey of Tampa Bay ET students, (2) a pilot survey of Florida ET students, and (3) a final survey

of Florida ET students. Figure 2 illustrates the timeline for completing the survey and annual reporting and dissemination activities.

First, in the beginning of Year 1 (Sept-Dec 2015), we will develop a survey as described above to administer to Tampa Bay ET programs as a pilot test during the Spring 2016 semester (Jan-April 2016). The end of Year 1 (May-Aug 2016) will be spent administering, analyzing, and revising the survey to distribute as a statewide pilot in Year 2 (Sept 2016-March 2017). The end of Year 2 (April-August 2017) will be spent again administering, analyzing, and revising the survey to distribute throughout the state in Year 3 (Sept 2017-March 2018). Year 3 would end with analysis of the statewide survey. We will end the project in April-August 2018 by developing a national survey of ET students based on statewide survey findings and input from national ET educators.

Figure 2. Project Timeline

Project Timeline	2015				2016				2017				2018											
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
	Year 1								Year 2								Year 3							
Design Regional Pilot Survey	█																							
Administer Regional Pilot Survey					█																			
Analyze Regional Pilot Survey					█																			
Design Statewide Pilot Survey					█																			
Administer Statewide Pilot Survey									█															
Analyze Statewide Pilot Survey									█															
Design Statewide Final Survey									█															
Administer Statewide Final Survey													█											
Analyze Statewide Final Survey													█											
Design National Survey													█											
Annual Activities																								
Survey Report					█								█								█			
NSF Annual Report													█								█			
Submit Manuscript									█								█							
Report to ET Forum	█				█				█				█				█				█			
Present ATE PI Showcase	█								█								█							

Dissemination Plan

Annual dissemination efforts are included on the Project Timing. We will complete annual reports and present at the ATE Principal Investigators meeting as required by NSF. We will write a survey report using descriptive statistics in May or June of each year to quickly summarize the findings of that year's survey. This report will be distributed by FLATE to ET educators throughout Florida for their feedback and to encourage continued participation and made available on the existing PathTech website and FLATE websites. We will also report findings to the Florida Forum on Engineering Technology, a bi-annual meeting of (ET Forum), a semi-annual meeting of ET educators, administrators, industry leaders, and vendors from throughout Florida. The PathTech research team will report on survey design activities and findings and Fall (Sept or Oct) and Spring (March or April) ET Forum meetings. This is an extension of ongoing efforts in which team members present findings from the ongoing PathTech-project at ET Forums and select FLATE Industry Advisory Council meetings. We also

plan to submit at least one manuscript to a peer reviewed publication every year that integrates findings from the survey with findings from the current PathTech project.

Conferences will be an important way by which we disseminate information to ET educators and researchers around the country. Each year, we will participate in three conferences geared toward technician education and/or community colleges such as American Association of Community Colleges or Hi-TEC. In addition, PI Tyson, Co-PI Fletcher, and Senior Personnel Smith will attend a conference in our fields (Sociology, Education, and Anthropology) to present our findings and promote ATE Targeted Research.

The key elements to the dissemination plan are the resulting national survey, best practices booklet, and webinar to be completed at the end of the grant. These best practices will be introduced and discussed at the Spring 2018 ET Forum. FLATE and PathTech will publish a best practices report. Co-PI Marie Boyette has authored several such reports over the last few years. FLATE and PathTech will also develop a webinar to disseminate best practices to ATE Centers and ET educators around the country.

Management Plan

This research plan will be executed by an interdisciplinary team of researchers with a great deal of experience conducting targeted research in technician education. Each senior team member was on the PathTech team.

Dr. Will Tyson, Principal Investigator, is an Associate Professor of Sociology at the University of South Florida. He will be continuing his role as Principal Investigator from the ongoing PathTech project. Dr. Tyson has over 10 years of experience as an NSF grantee serving in multiple roles on six different projects. PI Tyson will lead all phases of the project including planning, data analyses, and dissemination efforts. The proposed grant is a fitting extension to his line of research.

Dr. Marie Boyette, Co-Principal Investigator, is Associate Director of FLATE. As Co-Principal Investigator, Dr. Boyette will lead recruitment of survey participants by facilitate communication with the community colleges. Dr. Boyette will also co-lead survey development and distribution and lead the publication of a best practices report and lead the webinar at the end of the grant. Dr. Boyette is currently Co-Principal Investigator on PathTech. Dr. Edward C. Fletcher Jr., Co-Principal Investigator, is an Assistant Professor at the University of South Florida in the Career and Workforce Education program. Dr. Fletcher currently serves as a Quantitative Researcher on PathTech. He also has experience with instrumentation and has developed questionnaires such as the Instructional Strategies survey which predicted instructional strategy usage of K-12 teachers and higher education faculty based on demographic and course context factors. He will co-lead survey development and lead quantitative analyses.

Dr. Chrystal A. S. Smith will serve as Senior Personnel and Qualitative Lead, will develop survey items from the qualitative analysis of the PathTech interviews. She will also analyze the responses to the open ended questions on the survey. In addition, Dr. Smith will coordinate the administration of survey online with FLATE and participating community colleges. Dr. Smith served as Project Manager and Qualitative Investigator on PathTech.

We will also hire a GA from sociology or education to assist with survey construction and survey analysis. The GA will gain valuable training in mixed methods research design, survey methods and analysis, and writing and presenting. Our goal is to train the next generation of targeted researcher who will continue to work with community colleges.

Implementation

The hallmark of the PathTech targeted research model is partnerships with Florida State College System faculty and administrators, school district personnel and high school teachers and administrators, and local industry leaders. PathTech has established legitimacy in the Tampa Bay area with educators and employers in order to break down the walls between research and practice. PathTech researchers participate in local STEM education boards and advisory councils to generate formal and informal dialogue with K-12 and college ET educators and local industry leaders. In turn, we continuously share our findings with our partners as we aim to generate positive social change.

Implementations will be developed through collaborative processes at the Florida Forum on Engineering Technology (ET Forum). This is an extension of ongoing efforts in which team members present findings from the ongoing PathTech-Tampa Bay project at ET Forums and select FLATE Industry Advisory Council meetings.

By the end of Year 2, the FLATE and PathTech will assess the efficacy of the pilot implementation by comparing the two sets of survey results from regional survey to findings at the same colleges in the statewide survey. FLATE will distribute the Year 2 Florida reliability survey report (authored by PathTech) to Florida ET educators by August 2017 in advance of the Fall 2017 ET Forum. All Forum attendees will participate in a collaborative session on adapting findings into practice. We are requesting \$10,000 for stipends for pilot implementations to be awarded to colleges who participated in the session and submit a brief proposal describing actionable steps they could take on their campus to build from survey findings and ideas generated in the collaborative session. FLATE and PathTech will award stipends by December 31, 2017. Awardees will be asked to present on the impact of their implementations at the Fall 2018 ET Forum in September or October 2018.

Intellectual Merit

The PathTech research agenda designs, creates, and fosters collaborations that allow for organic development of research objectives and processes where knowledge is constructed and produced through interface and interaction with those experiencing technician educational and occupational pathways as administrators, teachers, students, employers, and policy makers. These collaborations will allow for real-time dissemination of emerging findings and developing knowledge, which allows all collaborative members to benefit from the research. A FLATE/PathTech national survey has great potential to further infuse targeted research into the NSF ATE agenda.

ATE Centers and ATE Projects are typically led by educators and practitioners with expertise on program development, curricular development, and professional development within their area of technical expertise and technician education. When discussing our research with ATE grantees and other stakeholders in K-12 education,

community colleges, and local industry we get the same revealing responses: “NSF always wants to know about student outcomes, but we don’t really know how to do the research” and “We didn’t know there were people like you out there who did this research”. In the white paper from the 2008 Targeted Research Design Challenge Workshop, Ritchie (2008:19) quotes an ATE PI saying that possible research topics are “very broad and often over-imposing” for them meaning the biggest challenge may be the “daunting notion” of research. A FLATE/PathTech national survey will address this concern by conducting original research in conjunction with ATE Center and ATE Project PIs to develop a research agenda based on their proposed or ongoing work.

Broader Impact and Sustainability

A key structural concern is that like all NSF efforts, ATE Centers and ATE Projects are extremely competitive. Successful NSF-ATE proposals are funded for 3 or 4 years with clear NSF expectations to achieve a specific set of ambitious outcomes in that time period as well as an indication of the long term impact of the grant effort. ATE grantees bemoan that it is “difficult to focus on general issues that extend beyond the life of an individual project” and “longitudinal studies beyond the life of project or center funding are generally not feasible”. ATE PIs also note that time and resources for research are “limited and insufficient” (Ritchie 2008:15). PathTech aims to make the research process easier for project PIs. Developing partnerships with ATE grantees across the country would allow PathTech personnel to identify common issues and themes across ATE Centers and ATE Projects in order to build sustainable longitudinal targeted research plans across project sites.

Through partnerships between PathTech and ATE Centers and Projects, the resulting national survey can be tailored to the specific needs of ATE Projects in order to track student outcomes before, during, and after the scope of the project. One potential framework for collaboration is that a college submitting an ATE Project proposal seeking to conduct program development and improvement activities could partner with FLATE/PathTech. We would administer the survey to their students at the beginning of Years 1, 2, and 3 to track trends and any changes in student outcomes. At the end of Year 2, we can partner with the college to seek funding for a Targeted Research in Technician Education project that would allow us to collaborate for three additional years to track student outcomes beyond the duration of the initial ATE Project. We could also seek out long-term relationships with ATE Centers to conduct regional mixed methods studies using the PathTech model with the goal of connecting ATE Centers with social science and education researchers at local universities who can continue targeted research collaborations. The potential for nationwide impact is there.

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Will Tyson, Associate Professor
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University of South Florida

Biographical Sketch

a. Professional Preparation

Wake Forest University	Sociology and Psychology	BA, 1998
Duke University	Sociology	MA, 2001
Duke University	Women's Studies	Graduate Certificate, 2003
Duke University	Sociology	PhD, 2004

b. Appointments

2012 – present	Associate Professor, Sociology, University of South Florida
2005 – 2012	Assistant Professor, Sociology, University of South Florida
2004 – 2005	Post-doctoral Research Associate, College of Education, University of South Florida

c. Products Most Closely Related

Martinez, Vanessa, Michelle Hughes Miller, Will Tyson. 2014. "Analyzing STEM Faculty Demographics and Faculty Climate Survey." Pp. 79-96 in *Alliances for Advancing Academic Women: Guidelines for Collaboration in Chemistry, Engineering and Beyond*, edited by Penny Gilmer, Michelle Hughes Miller, and Kathryn Borman. Rotterdam, The Netherlands: Sense Publishers.

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d. Other significant products

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e. Related Synergistic Activities

1. Member of the National Academy of Engineering (NAE) Committee on Engineering Technology Education (2014-15)
2. NSF Grant Review Panelist (2007, 2009, 2012), Chair (2013)
3. Member of Middleton High School STEM Advisory Board (2012-present)
4. Consultant at Pathways Think Tank panel coordinated by the Science Learning Activation Lab. The Activation Lab is led by the Lawrence Hall of Science at the University of California-Berkeley, the Learning Research Development Center at the University of Pittsburgh, and SRI International (May 2011)
5. Invited Panelist at Meetings of The National Academies National Research Council Board On Science Education, Irvine, CA (December 2009)

f. Collaborators & other affiliations

1. Collaborators

Kathryn M. Borman	University of South Florida (emeritus)
Marie Boyette	Hillsborough Community College
Bridget A. Cotner	U.S. Department of Veteran Affairs
Edward Fletcher	University of South Florida
Rhoda Halperin	Montclair State University (deceased)
Michelle Hughes-Miller	University of South Florida
Lakshmi Jayaram	University of Tampa (visiting)
Vanessa Martinez	University of South Florida
Arland Nguema Ndong	University of South Florida
Reginald Lee	University of South Florida
Becky Smerdon	Quill Research Associates
Chrystal A.S. Smith	University of South Florida

2. Graduate advisor and Post-doctoral sponsor

Kenneth I. Spenner	Duke University
Kathryn M. Borman	University of South Florida (emeritus)

3. Thesis advising

Janine Beahm
Antoine Jackson
Brian Nathan

Name: Dr. Marie Boyette

Work Address: Hillsborough Community College

10414 E. Columbus Dr. Suite 213

Tampa, FL 33619

Work Phone Number: (813) 259-6579

Work Email Address: mboyette3@hccfl.edu

(a) Professional Preparation

Undergraduate Institution USF Major Communication Degree & Year B.A., 2005

Graduate Institution: USF

Major Curriculum & Instruction/Measurement & Research/Adult Education

Degree & Year: PhD., 2009

Postdoctoral Institution na Area Inclusive Dates (years)

(b) Appointments (note: do NOT list job responsibilities)

Current job title, Institution

Associate Director, FLATE, 2009 to present

2nd most recent job title, Institution

Adjunct Faculty, HCC, 2008 to present

3rd most recent job title, Institution

Distance Learning Coordinator, USF, 2000-2009

(c) Products

(i) Five products most closely related to the proposed project:

1. ET Degree Paves the Way for Florida's Manufacturing Workforce, *A Pipeline to Industry - Association for Career and Technical Education (ACTE) Techniques*. January 2014, p. 40, www.acteonline.org.
2. Made in Florida Industry Tours: A Best Practice for Seeding Industry Partnerships, *Techniques, Connecting Education and Careers*, p.26-29, Sept., (2013).
3. Impact of Student Tours of Manufacturing Facilities, *American Society of Engineering Education (ASEE)*, June, (2013).
4. 2013 FCPN Presentation and Florida Best Practice Award for Professional Development: Enabling Technical Educators through Professional Development, http://www.ftpn.org/fcpn_awards.html
5. Adult/Secondary Career Pathways, 2014 FCPN Spotlight, <http://www.ftpn.org/>

(ii) Five other significant products:

1. FLATE Best Practices Guide: Professional Development (internal publication, 2014)
<http://fl-ate.org/news/publications.html>
2. FLATE Best Practices Guide: Recruiting and Retaining Girls in STEM (internal publication, 2014)
<http://fl-ate.org/news/publications.html>
3. FLATE Best Practices Guide: Forging Positive Partnerships in Florida (internal publication, 2013 rev.)
<http://fl-ate.org/news/publications.html>
4. FLATE Best Practices Guide: Industry Tours for Students (internal publication, 2013 rev.) <http://fl-ate.org/news/publications.html>
5. FLATE Best Practices Guide: Summer Robotics/STEM Camps (internal publication, 2013 rev.)
<http://fl-ate.org/news/publications.html>

(d) Synergistic Activities

1. Developed a hands-on “summer camp” experience for STEM K-12 teachers
2. Developed a measurement tool for tracking student demographics, enrollment, and completion for Engineering Technology (ET) and related technology programs using state databases
3. Chair Elect – Association of Florida Colleges (AFC)/Career and Technical Education(CTE)
4. Advisory Committee – TCC NSF-ATE Project – Dual Enrollment for Secondary Students
5. Presented and Received AFC Best Practice Award – Synergy in the Sunshine State (related to the ET program)

(e) Collaborators & Other Affiliations

Collaborators and Co-Editors: Dr. Marilyn Barger, FLATE

alphabetically with organizational affiliations, or indicate not applicable.

Graduate Advisors and Postdoctoral Sponsors: na List alphabetically with organizational affiliations, or indicate not applicable.

Thesis Advisor and Post-graduate-Scholar Sponsor: na List alphabetically with organizational affiliations, or indicate not applicable. Also list the total count of grad students and post-docs supervised, if applicable.

EDWARD C. FLETCHER JR.

University of South Florida
4202 E Fowler, EDU105
Tampa, FL 33620-5650
813-974-0029
ecfletcher@usf.edu

A. Professional Preparation

University of Missouri, Columbia, MO	Business and Marketing Education	BS 2002
University of Missouri, Columbia, MO	Career and Technical Education	MA 2006
The Ohio State University, Columbus, OH	Workforce Development & Ed.	PhD 2009

B. Appointments

2010-present Assistant Professor, Career and Workforce Ed., University of South Florida
2009-2010 Assistant Professor, Business Teacher Education, Illinois State University
2006-2009 Graduate Teaching Assistant, Workforce Dev. and Ed., Ohio State University
2005-2006 Graduate Teaching Assistant, Career & Technical Ed., University of Missouri

C. Products Most Closely Related

Cox, E., Hernandez-Gantes, V., & Fletcher, E. (in press). Who participates in high school career academies?: A descriptive analysis of six-year enrollment trends in a southeastern school district. *International Journal of Adult Vocational Education and Technology*.

Fletcher, E. (2014). Inside the black box: African American male students' educational experiences and outcomes as a result of participation in career and technical education. In J. Moore & C. Lewis (Eds.), *African American male students in PreK-12 schools: Informing Research, Policy, and Practice* (pp. 243-265). United Kingdom: Emerald Publishing.

Hernandez, V., & Fletcher, E. (2013). The need for integrated workforce development systems to broaden the participation of underrepresented students in STEM-related fields. In R. Palmer & L. Wood (Eds.), *Community colleges and STEM: Examining underrepresented racial and ethnic* (pp. 37-55). New York, NY: Routledge.

Fletcher, E., Lasonen, J., & Hernandez-Gantes, V. (2013). Opening doors for career advancement: Masters' students insight on program participation. *International Journal of Adult Vocational Education and Technology*, 4(4), 38-54. doi: 10.4018/IJAVET.20131001

Fletcher, E., & Cox, E. (2012). Exploring the meaning African American students ascribe to their participation in high school career academies and the challenges they experience. *The High School Journal*, 96(1), 4-19. doi: 10.1353/hsj.2012.0017

D. Other Significant Products

Fletcher, E. (in press). High school students' exposure to diversity in an urban teaching 3 academy and their conceptions of its place in future practice. *The Urban Review*. 46(5).

Fletcher, E., & Djajalaksana, Y. (in press). Predictors of instructional strategy use of faculty in career and technical education programs: Signature pedagogies of the field. *International Journal of Adult Vocational Education and Technology*.

Fletcher, E., Djajalaksana, Y., & Eison, J. (2013). Instructional strategy use of faculty in career and technical education. *Journal of Career and Technical Education*, 27(1), 69-83.

Fletcher, E. (2012). Demographics, tracking, and expectations in adolescence as determinants of employment status in adulthood: A study of school-to-work transitions. *Career and Technical Education Research*, 37(2), 103-119. doi: 10.5328/cter37.2.103

Fletcher, E. (2012). Predicting the influence of demographic differences and schooling experience in adolescence on occupational choice in adulthood. *Career and Technical Education Research*, 37(2), 121-139. doi: 10.5328/cter37.2.121

E. Synergistic Activities

- Dr. Fletcher is a **Qualitative Researcher** on the NSF ATE grant (\$1,196,790, #1104214), *Successful Academic and Employment Pathways in Advanced Technologies* (2012-2015). This mixed-methods study examined the pathways of students into engineering technology programs at community colleges and the workforce. We also collaborated with Florida Advanced Technological Education (FLATE), a NSF Center of Excellence.
- Dr. Fletcher was the **Principal Investigator** of the New Researcher Grant at the University of South Florida (\$10,000, #0080953), *Exploring the Meaning Urban Teaching Academy Students Ascribed to Their Participation* (2013-2014). The purpose of the research was to explore the meaning students ascribed to their participation in three high school Urban Teaching Academy programs
- Dr. Fletcher was the **Principal Investigator** of the Delta Pi Epsilon Research Foundation grant, *Investigating the Challenges of Developing Business Education Student Teachers: Perspectives from University Supervisors* (\$2,000, 2011-2012). The purpose of the project was to explore perspectives of business education university supervisors from the U.S. and Canada in terms of challenges and issues they encountered when preparing future business education teachers.

F. Collaborators & Other Affiliates

1. E. Daniel Cox, Volusia County School District
Yenni Djajalaksana, Maranatha Christian University
James Eison, University of South Florida
Victor Hernandez-Gantes, University of South Florida
Johanna Lasonen, University of South Florida

2. Graduate Advisor

E. Daniel Cox, University of South Florida
Jeremy Dearing, University of South Florida
Lisa Martino, University of South Florida
Zachary Riffell, University of South Florida
Kristofer Stubbs, University of South Florida
Rejeania Watts, University of South Florida
Kawana Williams, University of South Florida

CHRYSTAL A. S. SMITH

Department of Anthropology
Mail Stop: EDU 105; Office EDU 249
University of South Florida
4202 E. Fowler Avenue
Tampa, FL 33620-8100
Tel: 813-974-6668
Email: casmith5@usf.edu

A. Professional Preparation

Howard University, Washington D.C.	Anthropology	BA 1991
University of Maryland, College Park	Applied Anthropology	MAA 1998
University of South Florida, Tampa, FL	Public Health/Epidemiology	MPH 2003
University of South Florida, Tampa, FL	Applied Anthropology	PHD 2009
University of South Florida, Tampa, FL	Anthropology	2010-2013

B. Appointments

2014-present	Research Assistant Professor, Anthropology, University of South Florida
2013-2014	Post-Doctoral Scholar, Sociology, University of South Florida
2010-2012	Post-Doctoral Scholar, Anthropology, University of South Florida
2005-2009	Graduate Research Assistant, Anthropology, University of South Florida
2001-2005	Graduate Research Assistant, Center for Urban Transportation Research, USF
1995-1996	Teaching Assistant, Anthropology, University of Maryland, College Park
1997	Research Assistant, University of Maryland School of Medicine, Baltimore
1998-1999	Public Health Analyst, Breast and Cervical Cancer Early Detection Program (DC BCCEDP), District of Columbia Department of Health, Washington DC

C. Products

(i) Related

- Smith, C. A. S. (2014). Assessing Academic Women's Sense of Isolation in the STEM Disciplines (peer reviewed). In P. J. Gilmer, B. Tansel, & M. Hughes Miller (Eds.), *Alliances for advancing academic women: Guidelines for collaboration in STEM fields* (pp 97-113). Rotterdam: Sense Publishers.
- Smith, C. A. S. & Thomas, S. (2014). Learning Through Collaboration: Lessons from AAFAWCE, a NSF ADVANCE-PAID Grant (peer reviewed). In P. J. Gilmer, B. Tansel, & M. Hughes Miller (Eds.), *Alliances for advancing academic women: Guidelines for collaboration in STEM fields* (pp. 193-204). Rotterdam: Sense Publishers.
- Smith, C. A. S. (2011). Living with sugar: Influence of cultural beliefs on type 2 diabetes self-management of English-speaking women. *Journal of Immigrant and Minority Health*, 14:640-647.
- Tyson, W., Smith, C. A. S. & Nguema, A. N. (2010). To stay or to switch? Why students leave engineering programs. In K. M. Borman, W. Tyson, & R. H. Halperin (Eds.), *Becoming an engineer in public universities: pathways for women and minorities*. Pp. 53-80. New York: Palgrave Macmillian.

(ii) Significant

- Estacion, A., Cotner, B. A., D'Souza, S., Smith, C. A.S., & Borman, K. M. (2011) *Who enrolls in dual enrollment and other acceleration programs in Florida high schools? (Issues & Answers Report, REL 2012–No. 119)*. Washington, DC: U.S. Department of Education,

Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southeast.

Smith, C. A.S. & Barnett. E. (2005). Diabetes-related mortality among Mexican Americans, Puerto Ricans, and Cuban Americans in the United States. *Rev Panam Salud Publica/Pan Am J Public Health* 18(6):381-387.

D. Synergistic Activities

- Dr. Smith is the **Co-PI/Program Manager/Qualitative Lead** of the National Science Foundation research grant (\$1,140,983, #1432297), *The Effects of Social Capital and Cultural Models on the Retention and Degree Attainment of Women and Minority Engineering Undergraduates* (2014-2018). Her responsibilities include designing interview protocols, conducting interviews, training graduate students, and analyzing qualitative data. Assisting quantitative research team in designing, administering and analyzing surveys.
- Dr. Smith was the project manager of the NSF ATE grant (\$1,196,790, #1104214), *Successful Academic and Employment Pathways in Advanced Technologies* (2011-2014). This mixed-methods study examined the pathways of students into engineering technology programs at community colleges and the workforce.
- Dr. Smith was the project manager of the NSF ADVANCE-PAID collaborative grant (\$600,000, #0930164), *Alliance for the Advancement of Florida's Academic Women in Chemistry and Engineering* (2009-2013). Over this four year grant, she collaborated with chemistry and engineering faculty at USF, UF, FSU, FIU, and FAMU-FSU to design and implement mentoring, recruitment, and leadership activities to recruit, retain, and advance the careers of STEM women faculty.
- Dr. Smith was the program manager and Qualitative Lead of the mixed methods external evaluation for NSF *Center for Inquiry Science Teaching and Learning (CISTL)* (\$350,000, 2005-2010). She designed qualitative interview protocols and led site visits to observe activities, conduct interviews, and administer surveys. She was the lead author of annual evaluation reports.
- Dr. Smith was a leading member of the qualitative team on the NSF grant (#0525408), *Effects of College Degree Program Culture on Female and Minority Students' Science, Technology, Engineering and Mathematics Participation (STEP)* (2005-2008). This mixed-methods study involved surveying and interviewing engineering and chemistry faculty and students.

E. Collaborators & Other Affiliates

Penny J. Gilmer, Florida State University
Michelle Hughes Miller, University of South Florida
Marilyn Lovett, Livingstone College
Dinorah Martinez-Tyson, University of South Florida
Garnett Stokes, Florida State University
Berrin Tansel, Florida International University
William Tyson, University of South Florida

Graduate Advisors

Lorena Madrigal, University of South Florida
David Himmelgreen, University of South Florida

SUMMARY PROPOSAL BUDGET

YEAR 1

ORGANIZATION University of South Florida				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR William T Tyson				AWARD NO.	Proposed	Granted	
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD	SUMR			
1.	William T Tyson	4.50	0.00	2.00	51,195		
2.	Marie Boyette - none	0.00	0.00	0.00	0		
3.	Edward Fletcher	0.00	0.00	2.00	16,483		
4.	Chrystal A Smith	3.00	0.00	0.00	17,500		
5.							
6.	(0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0		
7.	(4) TOTAL SENIOR PERSONNEL (1 - 6)	7.50	0.00	4.00	85,178		
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1.	(0) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	0		
2.	(0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	0		
3.	(1) GRADUATE STUDENTS				20,934		
4.	(0) UNDERGRADUATE STUDENTS				0		
5.	(0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				0		
6.	(0) OTHER				0		
TOTAL SALARIES AND WAGES (A + B)					106,112		
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					20,168		
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					126,280		
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT					0		
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)					16,500		
2. FOREIGN					0		
F. PARTICIPANT SUPPORT COSTS							
1.	STIPENDS \$ <u>1,250</u>				0		
2.	TRAVEL _____				0		
3.	SUBSISTENCE _____				0		
4.	OTHER _____				0		
TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS					1,250		
G. OTHER DIRECT COSTS							
1. MATERIALS AND SUPPLIES					0		
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					0		
3. CONSULTANT SERVICES					10,000		
4. COMPUTER SERVICES					0		
5. SUBAWARDS					24,676		
6. OTHER					10,354		
TOTAL OTHER DIRECT COSTS					45,030		
H. TOTAL DIRECT COSTS (A THROUGH G)					189,060		
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect Costs (Rate: 49.5000, Base: 177456)							
TOTAL INDIRECT COSTS (F&A)					87,841		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					276,901		
K. RESIDUAL FUNDS					0		
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					276,901		
M. COST SHARING PROPOSED LEVEL \$ 0 AGREED LEVEL IF DIFFERENT \$							
PI/PD NAME William T Tyson				FOR NSF USE ONLY			
ORG. REP. NAME* Michelle Phillips				INDIRECT COST RATE VERIFICATION			
		Date Checked	Date Of Rate Sheet	Initials - ORG			

SUMMARY PROPOSAL BUDGET

YEAR 2

ORGANIZATION University of South Florida				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR William T Tyson				AWARD NO.	Proposed	Granted	
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
	CAL	ACAD	SUMR				
1. William T Tyson - none	0.00	0.00	2.00		16,225		
2. Marie Boyette - none	0.00	0.00	0.00		0		
3. Edward Fletcher	0.00	0.00	2.00		16,978		
4. Chrystal A Smith	3.00	0.00	0.00		18,025		
5.							
6. (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00		0		
7. (4) TOTAL SENIOR PERSONNEL (1 - 6)	3.00	0.00	4.00		51,228		
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. (0) POST DOCTORAL SCHOLARS	0.00	0.00	0.00		0		
2. (0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00		0		
3. (1) GRADUATE STUDENTS					20,934		
4. (0) UNDERGRADUATE STUDENTS					0		
5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					0		
6. (0) OTHER					0		
TOTAL SALARIES AND WAGES (A + B)					72,162		
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					14,565		
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					86,727		
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT					0		
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)					16,000		
2. FOREIGN					0		
F. PARTICIPANT SUPPORT COSTS							
1. STIPENDS \$			11,250				
2. TRAVEL			0				
3. SUBSISTENCE			0				
4. OTHER			0				
TOTAL NUMBER OF PARTICIPANTS (0)				TOTAL PARTICIPANT COSTS	11,250		
G. OTHER DIRECT COSTS							
1. MATERIALS AND SUPPLIES					0		
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					0		
3. CONSULTANT SERVICES					10,000		
4. COMPUTER SERVICES					0		
5. SUBAWARDS					28,290		
6. OTHER					10,872		
TOTAL OTHER DIRECT COSTS					49,162		
H. TOTAL DIRECT COSTS (A THROUGH G)					163,139		
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect Costs (Rate: 49.5000, Base: 113051)							
TOTAL INDIRECT COSTS (F&A)					55,960		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					219,099		
K. RESIDUAL FUNDS					0		
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					219,099		
M. COST SHARING PROPOSED LEVEL \$ 0				AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME William T Tyson				FOR NSF USE ONLY			
ORG. REP. NAME* Michelle Phillips				INDIRECT COST RATE VERIFICATION			
		Date Checked	Date Of Rate Sheet	Initials - ORG			

SUMMARY PROPOSAL BUDGET

YEAR 3

ORGANIZATION University of South Florida				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR William T Tyson				AWARD NO.	Proposed	Granted	
A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD	SUMR			
1.	William T Tyson - none	0.00	0.00	2.00	16,712		
2.	Marie Boyette - none	0.00	0.00	0.00	0		
3.	Edward Fletcher	0.00	0.00	2.00	17,487		
4.	Chrystal A Smith	3.00	0.00	0.00	18,566		
5.							
6.	(0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0		
7.	(4) TOTAL SENIOR PERSONNEL (1 - 6)	3.00	0.00	4.00	52,765		
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1.	(0) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	0		
2.	(0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	0		
3.	(1) GRADUATE STUDENTS				20,934		
4.	(0) UNDERGRADUATE STUDENTS				0		
5.	(0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				0		
6.	(0) OTHER				0		
TOTAL SALARIES AND WAGES (A + B)					73,699		
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					14,818		
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					88,517		
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT					0		
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)					16,000		
2. FOREIGN					0		
F. PARTICIPANT SUPPORT COSTS							
1.	STIPENDS \$ <u>12,500</u>						
2.	TRAVEL <u>0</u>						
3.	SUBSISTENCE <u>0</u>						
4.	OTHER <u>0</u>						
TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS					12,500		
G. OTHER DIRECT COSTS							
1. MATERIALS AND SUPPLIES					0		
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					0		
3. CONSULTANT SERVICES					10,000		
4. COMPUTER SERVICES					0		
5. SUBAWARDS					38,925		
6. OTHER					11,416		
TOTAL OTHER DIRECT COSTS					60,341		
H. TOTAL DIRECT COSTS (A THROUGH G)					177,358		
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect Costs (Rate: 49.5000, Base: 114517)							
TOTAL INDIRECT COSTS (F&A)					56,686		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					234,044		
K. RESIDUAL FUNDS					0		
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					234,044		
M. COST SHARING PROPOSED LEVEL \$ 0 AGREED LEVEL IF DIFFERENT \$							
PI/PI NAME William T Tyson				FOR NSF USE ONLY			
ORG. REP. NAME* Michelle Phillips				INDIRECT COST RATE VERIFICATION			
		Date Checked	Date Of Rate Sheet	Initials - ORG			

SUMMARY PROPOSAL BUDGET Cumulative

ORGANIZATION University of South Florida				FOR NSF USE ONLY		
				PROPOSAL NO.	DURATION (months)	
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR William T Tyson				AWARD NO.	Proposed	Granted
					NSF Funded Person-months	
A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				CAL	ACAD	SUMR
1. William T Tyson				4.50	0.00	6.00
2. Marie Boyette - none				0.00	0.00	0.00
3. Edward Fletcher				0.00	0.00	6.00
4. Chrystal A Smith				9.00	0.00	0.00
5.						
6. () OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)				0.00	0.00	0.00
7. (4) TOTAL SENIOR PERSONNEL (1 - 6)				13.50	0.00	12.00
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)						
1. (0) POST DOCTORAL SCHOLARS				0.00	0.00	0.00
2. (0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)				0.00	0.00	0.00
3. (3) GRADUATE STUDENTS						
4. (0) UNDERGRADUATE STUDENTS						
5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)						
6. (0) OTHER						
TOTAL SALARIES AND WAGES (A + B)						
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)						
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)						
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)						
TOTAL EQUIPMENT						
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)						
2. FOREIGN						
F. PARTICIPANT SUPPORT COSTS						
1. STIPENDS \$ 25,000						
2. TRAVEL 0						
3. SUBSISTENCE 0						
4. OTHER 0						
TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS						
G. OTHER DIRECT COSTS						
1. MATERIALS AND SUPPLIES						
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION						
3. CONSULTANT SERVICES						
4. COMPUTER SERVICES						
5. SUBAWARDS						
6. OTHER						
TOTAL OTHER DIRECT COSTS						
H. TOTAL DIRECT COSTS (A THROUGH G)						
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)						
TOTAL INDIRECT COSTS (F&A)						
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)						
K. RESIDUAL FUNDS						
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)						
M. COST SHARING PROPOSED LEVEL \$ 0 AGREED LEVEL IF DIFFERENT \$						
PI/PI NAME William T Tyson				FOR NSF USE ONLY		
ORG. REP. NAME* Michelle Phillips				INDIRECT COST RATE VERIFICATION		
				Date Checked	Date Of Rate Sheet	Initials - ORG

C *ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

Budget Justification

A-C. Salary, wages, and fringe benefits

Dr. Will Tyson will be the PI for this project, and is requesting 2 summer months of salary for each of the 3 years. Dr. Tyson will be on sabbatical during the first year of the project, and is requesting salary support to make up the difference between sabbatical rate of pay and the individual base salary rate for this period, in which Dr. Tyson will be performing work on the project. Funds are requested to support 2 months of summer salary for Dr. Eddie Fletcher. Funds are requested to support a 25% effort for Dr. Chrystal Smith. Fringe rates for the personnel is calculated at 16.44%. A graduate student is requested each year at a rate of \$20,934, and fringe will be calculated at 0.50% with annual GA insurance at \$2,161.

E. Travel

Florida Forum on Engineering Technology (aka ET Forum) - This is a forum hosted by our FLATE partners at HCC twice a year in the Fall (Sept or Oct) and Spring (March or April). The meetings take place in Florida so travel and lodging needs vary. Funds requested are \$600 per person a year, for a total of \$1800 a year.

NSF ATE PI meeting – This is the annual PI meeting for the funding program. The project gets complementary registration and two nights of hotel for the PI and another person. Travel is requested at \$500 for those two people. Registration, hotel, and travel is requested at \$1300 for the 3rd person. There are also expenses for attending pre-conference workshops (extra hotel night, pre-conference registration). Requested funds for this is \$400. The total funds requested for this meeting is \$2,200 per year.

One annual conference presenting in conjunction with FLATE at a meeting geared toward community colleges and/or advanced technology education. One for each member of the team at \$2000 each per year (\$6000 a year).

One conference in our fields (Sociology, Education, Anthropology). One for each member of the team at \$2000 each per year (\$6000 a year).

Local meetings such as FLATE Industry Advisory Council. These are two to three hour afternoon to evening meetings at a location in the Tampa area. Meetings are three times a year. This should be \$500 for the duration of the grant just for gas money for all three of us.

F. Participant Support Costs

We will be conducting three rounds of our survey. The first round will be local, the second and third throughout the state. We are estimating responses from 50 to the Year 1 pilot survey in Tampa colleges, 450 to the Year 2 pilot survey throughout the state, and 500 to the Year 3 final survey around the state. That would be around a 40% response rate with a slight bump in Year 3 for a total of 1000 responses. \$25 for each respondent is budgeted.

Year 1 – 50 respondents (\$1,250)

Year 2 – 450 respondents (\$11,250)

Year 3 – 500 respondents (\$12,500)

Total – 1000 respondents (\$25,000)

Total Participant Costs requested is \$25,000.

G. Other Direct Costs

Consultant Services

An external evaluator is requested at \$10,000 for each of the 3 years of the project. This consultant will evaluate and monitor the progress of the survey development and administration, participate in client calls, review survey materials, write an annual evaluation report, and provide feedback to the USF research team.

Subawards

Hillsborough Community College (HCC) will be serving as a subaward for this project. HCC is requesting \$24,676 in year 1, \$28,290 in year 2, and \$38,925 in year 3.

Other-Tuition

Tuition is requested for the graduate student each of the three years at 24 in state credit hours per year. In year 1, tuition is calculated at \$431.43 per credit hour, with an inflation rate of 5% for years 2 and 3.

H. Total Direct Costs

The total direct costs requested is \$529,557

I. Indirect Costs

Indirect costs are calculated at 49.5% of the modified total direct costs, which does not include participant costs or tuition (\$405,024). The total indirect costs requested is \$200,487

J. Total Direct and Indirect Costs

The total requested funds is \$730,044

SUMMARY PROPOSAL BUDGET

YEAR 1

ORGANIZATION Hillsborough Community College				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Marie T Boyette				AWARD NO.	Proposed	Granted	
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD	SUMR			
1.	Marie Boyette - Co-PI	0.00	1.50	0.00	7,446		
2.							
3.							
4.							
5.							
6.	(0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0		
7.	(1) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	1.50	0.00	7,446		
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1.	(0) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	0		
2.	(0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	0		
3.	(0) GRADUATE STUDENTS				0		
4.	(1) UNDERGRADUATE STUDENTS				5,000		
5.	(0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				0		
6.	(0) OTHER				0		
TOTAL SALARIES AND WAGES (A + B)					12,446		
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					1,912		
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					14,358		
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT					0		
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)					0		
2. FOREIGN					0		
F. PARTICIPANT SUPPORT COSTS							
1.	STIPENDS \$ _____				0		
2.	TRAVEL _____				0		
3.	SUBSISTENCE _____				0		
4.	OTHER _____				0		
TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS					0		
G. OTHER DIRECT COSTS							
1.	MATERIALS AND SUPPLIES				1,000		
2.	PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				0		
3.	CONSULTANT SERVICES				3,000		
4.	COMPUTER SERVICES				0		
5.	SUBAWARDS				0		
6.	OTHER				0		
TOTAL OTHER DIRECT COSTS					4,000		
H. TOTAL DIRECT COSTS (A THROUGH G)					18,358		
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect MTDC (Rate: 44.0000, Base: 14358)							
TOTAL INDIRECT COSTS (F&A)					6,318		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					24,676		
K. RESIDUAL FUNDS					0		
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					24,676		
M. COST SHARING PROPOSED LEVEL \$ 0 AGREED LEVEL IF DIFFERENT \$							
PI/PD NAME Marie T Boyette				FOR NSF USE ONLY			
ORG. REP. NAME* Michelle Phillips				INDIRECT COST RATE VERIFICATION			
		Date Checked	Date Of Rate Sheet	Initials - ORG			

SUMMARY PROPOSAL BUDGET

YEAR **2**

ORGANIZATION Hillsborough Community College				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Marie T Boyette				AWARD NO.	Proposed	Granted	
A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD	SUMR			
1.	Marie Boyette - PI	0.00	1.50	0.00	7,669		
2.							
3.							
4.							
5.							
6.	(0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0		
7.	(1) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	1.50	0.00	7,669		
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1.	(0) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	0		
2.	(0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	0		
3.	(0) GRADUATE STUDENTS				0		
4.	(1) UNDERGRADUATE STUDENTS				5,150		
5.	(0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				0		
6.	(0) OTHER				0		
TOTAL SALARIES AND WAGES (A + B)					12,819		
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					1,966		
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					14,785		
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT					0		
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)					0		
2. FOREIGN					0		
F. PARTICIPANT SUPPORT COSTS							
1.	STIPENDS \$ _____				0		
2.	TRAVEL _____				0		
3.	SUBSISTENCE _____				0		
4.	OTHER _____				0		
TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS					0		
G. OTHER DIRECT COSTS							
1.	MATERIALS AND SUPPLIES				1,000		
2.	PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				0		
3.	CONSULTANT SERVICES				6,000		
4.	COMPUTER SERVICES				0		
5.	SUBAWARDS				0		
6.	OTHER				0		
TOTAL OTHER DIRECT COSTS					7,000		
H. TOTAL DIRECT COSTS (A THROUGH G)					21,785		
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect MTDC (Rate: 44.0000, Base: 14785)							
TOTAL INDIRECT COSTS (F&A)					6,505		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					28,290		
K. RESIDUAL FUNDS					0		
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					28,290		
M. COST SHARING PROPOSED LEVEL \$ 0 AGREED LEVEL IF DIFFERENT \$							
PI/PI NAME Marie T Boyette				FOR NSF USE ONLY			
ORG. REP. NAME* Michelle Phillips				INDIRECT COST RATE VERIFICATION			
		Date Checked	Date Of Rate Sheet	Initials - ORG			

SUMMARY PROPOSAL BUDGET

YEAR 3

ORGANIZATION Hillsborough Community College				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Marie T Boyette				AWARD NO.	Proposed	Granted	
A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD	SUMR			
1.	Marie Boyette - Co-PI	0.00	1.50	0.00	7,899		
2.							
3.							
4.							
5.							
6.	(0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0		
7.	(1) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	1.50	0.00	7,899		
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1.	(0) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	0		
2.	(0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	0		
3.	(0) GRADUATE STUDENTS				0		
4.	(1) UNDERGRADUATE STUDENTS				5,305		
5.	(0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				0		
6.	(0) OTHER				0		
TOTAL SALARIES AND WAGES (A + B)					13,204		
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					2,022		
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					15,226		
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT					0		
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)					0		
2. FOREIGN					0		
F. PARTICIPANT SUPPORT COSTS							
1.	STIPENDS \$ <u>10,000</u>						
2.	TRAVEL <u>0</u>						
3.	SUBSISTENCE <u>0</u>						
4.	OTHER <u>0</u>						
TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS					10,000		
G. OTHER DIRECT COSTS							
1.	MATERIALS AND SUPPLIES				1,000		
2.	PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				0		
3.	CONSULTANT SERVICES				6,000		
4.	COMPUTER SERVICES				0		
5.	SUBAWARDS				0		
6.	OTHER				0		
TOTAL OTHER DIRECT COSTS					7,000		
H. TOTAL DIRECT COSTS (A THROUGH G)					32,226		
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect MTDC (Rate: 44.0000, Base: 15226)							
TOTAL INDIRECT COSTS (F&A)					6,699		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					38,925		
K. RESIDUAL FUNDS					0		
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					38,925		
M. COST SHARING PROPOSED LEVEL \$ 0 AGREED LEVEL IF DIFFERENT \$							
PI/PI NAME Marie T Boyette				FOR NSF USE ONLY			
ORG. REP. NAME* Michelle Phillips				INDIRECT COST RATE VERIFICATION			
		Date Checked	Date Of Rate Sheet	Initials - ORG			

SUMMARY PROPOSAL BUDGET Cumulative

ORGANIZATION Hillsborough Community College				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Marie T Boyette				AWARD NO.	Proposed	Granted	
				A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)			
				CAL	ACAD	SUMR	
1. Marie Boyette - PI				0.00	4.50	0.00	23,014
2.							
3.							
4.							
5.							
6. () OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)				0.00	0.00	0.00	0
7. (1) TOTAL SENIOR PERSONNEL (1 - 6)				0.00	4.50	0.00	23,014
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. (0) POST DOCTORAL SCHOLARS				0.00	0.00	0.00	0
2. (0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)				0.00	0.00	0.00	0
3. (0) GRADUATE STUDENTS							0
4. (3) UNDERGRADUATE STUDENTS							15,455
5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)							0
6. (0) OTHER							0
TOTAL SALARIES AND WAGES (A + B)							38,469
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)							5,900
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)							44,369
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT							0
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)							0
2. FOREIGN							0
F. PARTICIPANT SUPPORT COSTS							
1. STIPENDS \$ 10,000							
2. TRAVEL 0							
3. SUBSISTENCE 0							
4. OTHER 0							
TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS							10,000
G. OTHER DIRECT COSTS							
1. MATERIALS AND SUPPLIES							3,000
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION							0
3. CONSULTANT SERVICES							15,000
4. COMPUTER SERVICES							0
5. SUBAWARDS							0
6. OTHER							0
TOTAL OTHER DIRECT COSTS							18,000
H. TOTAL DIRECT COSTS (A THROUGH G)							72,369
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)							
TOTAL INDIRECT COSTS (F&A)							19,522
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)							91,891
K. RESIDUAL FUNDS							0
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)							91,891
M. COST SHARING PROPOSED LEVEL \$ 0 AGREED LEVEL IF DIFFERENT \$							
PI/PD NAME Marie T Boyette				FOR NSF USE ONLY			
ORG. REP. NAME* Michelle Phillips				INDIRECT COST RATE VERIFICATION			
				Date Checked	Date Of Rate Sheet	Initials - ORG	

C *ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

Budget Justification

A. Senior Key Personnel

Dr. Marie Boyette, will serve as Co-Principal Investigator and will commit 12.5% of her calendar time to all four years of the study. She will serve as the liaison to the University of South Florida and will help to coordinate all educator, administrator, and students at participating colleges offering the A.S./A.A.S Engineering Technology and/or its related college certificates. Dr. Marilyn Barger, executive director of FLATE, will serve as senior personnel on the project. She will facilitate the collaboration's efforts and will be providing an in-kind commitment for all four years to the study.

B. Other Personnel

One undergraduate student researcher (\$5000) for all four years to assist with coordination and planning of meetings among other tasks.

C. Fringe Benefits

Project personnel's salary includes a standard 3% cost of living raise each year. Fringe is calculated for calendar months at 17.5% for all faculty and staff. Undergraduate student researcher fringe is calculated at 10% fringe.

E. Travel

There are funds allocated for two project personnel to attend the annual ATE PI meeting in Washington, DC and/or other dissemination conferences each of the four years of the award. The budget includes airfare, hotel, per diem (Florida per diem rate is \$36), and ground transportation to and from the meeting.

F. Participant Support Costs

Stipends - \$10,000 in Year 3.

All Forum attendees will participate in a collaborative session on adapting findings into practice. We are requesting \$10,000 for stipends for pilot implementations to be awarded to colleges who participated in the session and submit a brief proposal describing actionable steps they could take on their campus to build from survey findings and ideas generated in the collaborative session. FLATE and PathTech will award stipends by December 31, 2017. Awardees will be asked to present on the impact of their implementations at the Fall 2018 ET Forum in September or October 2018.

G. Other Direct Costs

1. Materials and Supplies

We request funds to allow for shipping, postage, and freight to be made to the partner members. Office supplies, consumables to support the project's activities are also included, such as materials for the annual meeting and reproduction of draft documents. All materials and supplies will be for the exclusive use of this project for the entire project period.

3. Consultant Services

Consultant Services will consist of web and graphic services to ensure project related activities and products are kept up-to-date.

I. Indirect Costs

The indirect rate for HCC is 44% on salary, wage, and fringe.

J. Total Direct and Indirect Costs

The total requested funds is \$91,891

Current and Pending Support: Dr. William Tyson

Current

National Science Foundation (DUE #1104214)

Successful Academic and Employment Pathways in Advanced Technologies”

Principal Investigator: Will Tyson

\$1,196,790 September 2011 – August 2015

Pending

Project Title: Engineering Students and Job-School Balance: A Qualitative Approach Using Personal Digital Archives.

Project Start Date: 01/01/2015.

Project End Date: 12/31/2015.

Type of Grant: Small Grant.

Requested Amount: \$49,981.50 .

1.5 Summer 2.25 ACAD

Project Title: PathTech Florida: Constructing a National Survey of Engineering Technology Students through Regional and Statewide Testing

National Science Foundation

\$730,044

09/01/2015-08/31/2018

2 Summer Months 4.5 Calendar Months

Current and Pending

Dr. Fletcher does not have any current or pending awards.

Facilities, Equipment and Other Resources

Office:

Office Space: PI Will Tyson has standard office resources in the USF Department of Sociology. Co-PI Marie Boyette has standard office resources at the Florida Advanced Technological Education Center (FLATE) at the Brandon Campus of Hillsborough Community College. Co-PI Eddie Fletcher and Senior Personnel Chrystal Smith have standard office resources in the USF College of Education. Each has one desktop computer with teleconferencing capabilities and locked storage space within a locked office. Each department includes one copier, two printers, one fax machine, and two conference rooms.

PathTech Office: PI Will Tyson has office space allotted from the College of Arts & Sciences for Dr. Tyson's current NSF funded PathTech grant. Office space includes one phone, eight desktop computers, and locked cabinet space.

ICF International Offices: ICF offices, located at 9300 Lee Highway, Fairfax, VA, will be the primary place of performance for the evaluation. The headquarters is supplied with office equipment and furniture that is adequate for the performance of the proposed evaluation activities.

Institutional Resources:

University of South Florida: The University of South Florida (USF), established in 1956 as a public university, is a comprehensive multi-campus research university serving more than 47,000 students. The USF System is an evolving multi-campus system of higher education with fiscally autonomous, yet complementary, campuses in Tampa (including USF Health), St. Petersburg, Sarasota/Manatee, and USF Polytechnic. USF is home to medical clinics and hospitals, a major mental health research institute, and two public broadcasting stations. The University employs more than 1585 full-time instructional faculty, over 4500 full-time staff. USF is a member of the Big East Athletic Conference, has a \$1.8 billion annual budget, and an annual economic impact of \$3.2 billion.

The University of South Florida is one of the nation's top 63 public research universities and one of only 25 public research universities nationwide with very high research activity that is designated as community engaged by the Carnegie Foundation for the Advancement of Teaching. According to the National Science Foundation, USF is ranked 44th in total research expenditures and 38th in federal research expenditures for public universities.

FLATE: The Florida Advanced Technological Education Center (FLATE) is located in 2000 square feet office suite on the Brandon Campus of Hillsborough Community College in Tampa, Florida approximately 8 miles from the AAREA offices at USF. Each of 5 offices has a computer and monitor and access to networked printers in a common work room containing a copier and fax machine. FLATE also has access to telephone service with teleconference capabilities. Three conference rooms on the same floor are available for FLATE's use. FLATE has one full time administrative support person on staff.

ICF International: ICF International hosts the following resources that will be used to conduct evaluation for the proposed study.

1. Computer Network and IT Infrastructure: Individual laptop personal computers for all staff and Blackberry handheld devices distributed to managers and key project staff with a need for all hour accessibility. Corporate technology and telecommunications

infrastructure supports access to local and wide-area networks (LAN and WAN) and daily backup services. LAN and WAN supports more than 3,750 staff distributed across more than 70 offices in addition to client sites and numerous home-based offices. State-of-the-art Tier IV data center available for secure and reliable hosting using the latest in firewall and security monitoring technology. There are triple redundant 1 Megawatt (MW) backup power generators and network connectivity is assured through the use of multiple and diverse Tier I internet providers.

2. Phone, Video and Web Conferencing: VoIP with call forwarding, conference call feature, speakerphone and voicemail, teleconferencing up to 125 participants per call controlled access via pass-code security. Live Meeting Web conference capabilities up to 5,000 participants per meeting. Video conferencing equipment.
1. Graphics and Production Center: In-house graphics design studio staffed by 10 graphics artists and designers for high-quality graphics, multimedia, photography, modeling, and publication design. Equipped with both PC and MAC platforms. Full state-of-the-art reprographics shop equipment. Award-winning video studio in Rockville, MD and state-of-the-art recording studio in Atlanta, GA office.
2. Conference Room Facilities: In the Fairfax office, a fully equipped auditorium with seating for 97 people, an adjacent breakout room for up to 60 participants, a formal boardroom for 35 participants, and approximately 45 smaller meeting rooms on each of the building's 12 floors that can accommodate 5 to 25 people all with wireless internet connections. DC conference facilities for up to 70 people; 3 additional conference rooms accommodate 22 people, 12, and 10 each. Two conference rooms are equipped with state-of-the art audiovisual equipment, including wall-mounted plasma monitors. The Rockville, MD office offers a large, professional conference room with space for 60 participants in a theater configuration or more than 40 for interactive conference settings. In addition, the office has six smaller meeting rooms that can accommodate 5 to 15 people.
3. Library Facilities: Staffed Research Services with ready access (800 computerized databases) government, research, university, law, and public libraries. Library staff participate in the OCLC Interlibrary Loan Network to access articles, books, and other materials from technical, research, and government libraries across the US and around the globe.

Data Management Plan (DMP)

1. Data and materials

This study will produce quantitative survey data from Qualtrics.

2. Standards to be used for data

All survey data will be stored USF's secured computer servers. The data will be stored and managed in Microsoft Excel.

3. Policies for access and sharing data

All information and documents (i.e., informed consent forms, interview recordings) completed by research participants will be used for research purposes only and will be kept in strict confidence. Confidentiality will be maintained by assigning participants' numerical identifiers. Participants will be informed that their personal information and responses will not be used for any other purposes than conducting statistical analyses and obtaining results for eventual publication.

All physical materials will be secured on-site (e.g., locked cabinets and locked offices) at Dr. Tyson's Office. Informed consent documents, participants' contact information, and other identifying documents will be stored in a separately from the data in a locked filing cabinet and will only be available to the research staff involved in this project.

All members of the USF research team will have access to the datasets. They will have received training in human subject issues required of all investigators and signed confidentiality statements. As part of the regular ethical research review protocol, all research instruments and activities along with the external evaluator will be submitted to the IRB divisions USF and participating universities as required.

5. Plans for Archiving Data

According to USF IRB policy, the PI "must maintain all research records (e.g. signed informed consent documents, source documents, case report forms, laboratory results, and regulatory binder documents) to allow for a complete accounting of study activity for a minimum of *five (5) years* after the study is closed by the IRB" (USF IRB 5.0, 5.1, 5.1.1).

At the conclusion of the project, hard copies of all project documents will be continued to be stored on-site (e.g., locked cabinets and locked offices) at Dr. Tyson's office. PI and co-PIs will have access to these files. All study documents such as scholarly articles, white papers, and presented papers will be uploaded to the project Web site so they will be available to other STEM researchers and the general public.

Budget Justification

A. Senior Key Personnel

Dr. Marie Boyette, will serve as Co-Principal Investigator and will commit 12.5% of her calendar time to all four years of the study. She will serve as the liaison to the University of South Florida and will help to coordinate all educator, administrator, and students at participating colleges offering the A.S./A.A.S Engineering Technology and/or its related college certificates. Dr. Marilyn Barger, executive director of FLATE, will serve as senior personnel on the project. She will facilitate the collaboration's efforts and will be providing an in-kind commitment for all four years to the study.

B. Other Personnel

One undergraduate student researcher (\$5000) for all four years to assist with coordination and planning of meetings among other tasks.

C. Fringe Benefits

Project personnel's salary includes a standard 3% cost of living raise each year. Fringe is calculated for calendar months at 17.5% for all faculty and staff. Undergraduate student researcher fringe is calculated at 10% fringe.

E. Travel

There are funds allocated for two project personnel to attend the annual ATE PI meeting in Washington, DC and/or other dissemination conferences each of the four years of the award. The budget includes airfare, hotel, per diem (Florida per diem rate is \$36), and ground transportation to and from the meeting.

F. Participant Support Costs

Stipends - \$10,000 in Year 3.

All Forum attendees will participate in a collaborative session on adapting findings into practice. We are requesting \$10,000 for stipends for pilot implementations to be awarded to colleges who participated in the session and submit a brief proposal describing actionable steps they could take on their campus to build from survey findings and ideas generated in the collaborative session. FLATE and PathTech will award stipends by December 31, 2017. Awardees will be asked to present on the impact of their implementations at the Fall 2018 ET Forum in September or October 2018.

G. Other Direct Costs

1. Materials and Supplies

We request funds to allow for shipping, postage, and freight to be made to the partner members. Office supplies, consumables to support the project's activities are also included, such as materials for the annual meeting and reproduction of draft documents. All materials and supplies will be for the exclusive use of this project for the entire project period.

3. Consultant Services

Consultant Services will consist of web and graphic services to ensure project related activities and products are kept up-to-date.

I. Indirect Costs

The indirect rate for HCC is 44% on salary, wage, and fringe.

J. Total Direct and Indirect Costs

The total requested funds is \$91,891

October 8, 2014

Will Tyson, PhD
Associate Professor
University of South Florida
Department of Sociology
4202 E. Fowler Ave. , CPR 107
Tampa, FL 33620

SUBJECT: Letter of Support for University of South Florida “PathTech Florida” grant

Dear Dr. Tyson:

FLATE is enthusiastic about continuing our partnership through the project entitled “PathTech Florida: Constructing a National Survey of Engineering Technology Students through Regional and Statewide Testing” to be submitted to the National Science Foundation Advanced Technological Education (ATE) program. This project will continue our work to better understand the pathways of Florida community college engineering technology students and their decision to pursue certifications and/or AS/AAS degrees. We have learned a great deal from the current PathTech project based in the Tampa Bay area. Interviews with our students as well as high school students and employers in the region have been enlightening and informed our practices at Hillsborough Community College and information we share with our partner institutions throughout the state.

We at FLATE look forward to the leadership role we will take on this project through the involvement of FLATE Associate Director Dr. Marie Boyette as Co-PI. She is a valuable part of the current project and will be serve in valuable capacities in this grant as well. Dr. Boyette will work closely with you and Dr. Eddie Fletcher to construct the surveys based on her own experience designing surveys geared toward learning more about ET students. She will also serve as a point of contact with community college ET educators to help recruit students to take the regional and statewide surveys.

We are particularly excited by the long-term goal of building a FLATE/PathTech national survey to share with our partners around the country. The more we learn about the national ET landscape, the better we can serve our students and prepare them for the workforce.

Sincerely,

Marilyn Barger, Ph.D. P.E.
Executive Director, FLATE