A. Significance (Up to 35 Points)

(1) The extent to which the proposed project would implement a novel approach as compared with what has been previously attempted nationally. (2013 i3 NFP)

University Public Schools, Inc.(**UPSI**), is an innovative system of charter schools in affiliation with Arizona State University (**ASU**), that brings high-quality educational instruction to a largely low-income, Hispanic population in and around Phoenix, AZ. Providing personalized attention in a university-embedded academic program, UPSI prepares students for post-secondary success. At all UPSI campuses, learners are empowered to complete college, excel in a global society, and contribute to their communities. The effective use of technologies in teaching and learning, coupled with high expectations for all students, and a vertically aligned P-20 curriculum (pre-school through college) focused on authentic learning experiences, and fully embedded with STEM immersion has had a powerful impact on academic outcomes.The P-20 curriculum, unique to the strong partnership between UPSI and Arizona State University, cultivates knowledge enterprise for students – preparing ALL for post-secondary success, with vertical alignment from preschool through graduate coursework. To continue to build on this solid foundation andfurther improve student gains, UPSI and Arizona State University have designed**Gathering, Reflecting, Owning our Work** (**GROW**), a five year project requesting $992,641 in Year One.**GROW** represents a novel approach with proven roots, specifically designed to dramatically impact academic gains P-20 for high-poverty student populations and accelerate learning for high performers.

Targeted Schools
ASU Preparatory Academy-Phoenix Elementary, ASU Preparatory-Phoenix Middle School, ASU Preparatory Academy-Phoenix High School, ASU Preparatory Academy-Polytechnic Elementary School, ASU Preparatory Academy-Polytechnic Middle School, and ASU Preparatory Academy-Polytechnic High School

GROW will make effective use of technology to provide a unique blend of emergent learning strategies and innovative teacher effectiveness technologies that provide a multi-faceted

educational approach to identify and address the individual and collective needs of students, educators, and families. Existing empirical data (described on page 7please cross-reference) indicates that, implemented at full-scale, **GROW** will transform the learning environment and lead to dramatic gains in student academic outcomes. In addition, through shared activities and lessons learned, GROW also has the potential to influence higher education teacher training programs, creating an optimal model for an education ecosystem.

Through effective use of technologies, **GROW** will provide students with age-appropriate access to learning experiences that are personalized, adaptive, and self-improving to optimize the delivery of instruction to diverse learners. Specifically, technology will support STEM immersion beginning in grades K-5, enabling full implementation of a project-based academic model that integrates STEM behaviors in all aspects of learning. The emphasis on immersion will deepen in grades 6-8, as middle school learning shifts to the acquisition of disciplinary knowledge and application. Beginning within this grade band, content experts will teach math, science, language arts and social studies–facilitating the integration of cutting edge educational technologies specifically suited to the unique opportunities present within each core subject. Using the Common Core mathematical practices, the Cambridge Science Inquiry strategies, Arizona's Instrument to Measure Standards (AIMS), the Engineering in Schools' Habits of Mind, and the International Society for Technology Education standards, teachers will evaluate and integrate standard behaviors, knowledge, and skills into the core disciplines.

Students entering high school will have a strong foundation in developing the key behaviors of problem solving, creativity, critical thinking and analysis, questioning, researching, and communicating. These skills will be strengthened through practice, as students complete an annual Capstone Project, experiencing authentic and personalized learning as they create unique

demonstrations of cross-curricular learning with guidance from ASU graduate students, ASU faculty, and community and industry experts.These interactions may be in person or through virtual communications. The annual Capstone Project allows students to develop and expand their understanding of social interest projects by applying their content knowledge from core subjects and through innovative technologies.

GROW will be integrated into the fabric of classroom life, however in an effort to more fully realize ambitious project objectives, a strong family-focused component will also be instrumental, promotingand facilitating technology utilization and STEM interaction during out-of-school time. A recent study by San Diego State University reported that the college-bound rate for San Diego County students was 79.2% when their parents had a history of involvement in their education, compared to a 52% college-bound rate for students without active parental participation in their educational journey.[i]At the Phoenix Campuses, approximately 70% of targeted students live in poverty, based on annual Free and Reduced Lunch eligibility statistics. As a result, the large majority of UPSI students return home each afternoon unable to continue learning in a STEM-integrated environment.**GROW** will support the investment in portable student technology, facilitating 24/7 access to learning opportunities and providing family access to online communication methods, including the UPSI learning management system and unique student portfolios. **GROW** will also support an investment in software that allows families to communicate through digital translation, overcoming the significant language barriers associated with a student population that is 69% Hispanic/Latino and 14% English Language Learners at UPSI's downtown campuses. All families will be required to commit 30 volunteer hours each academic year, to further promote the family as a key contributor to positive student learning outcomes.

GROW will directly impact all 2,000 students K-12, but it will also continue to inform alignment between secondary and post-secondary education through a strategic partnership with ASU.Upon graduation, all **GROW** students will be academically prepared to succeed at the college level given UPSI's rigorous curriculum and early and regular integration with university experiences.Efforts are already underway to align high school curriculum with post-secondary requirements, as advanced students in Grades 9 and 10 utilize the *Knewton* online learning program daily to solidify and extend accelerated math skills – a program that is mandatory at ASU for all students demonstrating a need for remedial math courses, and is preparing UPSI students to enter ASU without need for additional remediation.

Through an intensive P-20 focus on STEM immersion and project-based learning, **GROW** will ensure all students have daily interaction with cutting edge educational technology and devices. These portable links to technology-based learning will provide on-the-go learning for students outside of the classroom, and will allow teachers to analyze and assess which learning interventions provide the greatest impact on sub-group learner populations. A longtime partnership with the ASU Learning Sciences Institute will integrate online gaming theory into curriculum that is designed to address the specific grade-level needs.Interactive, technology-based concept mapswill focus on vocabulary building needs, relationships between skills, and foundational competencies where students demonstrate weaknesses, informed through the P-12 Learning Management System (**LMS**) on all targeted campuses. The P-12 LMS utilizes technology that allows educators to capture and analyze student performance at the individual and collective level, facilitating the use of real-time, data-driven instruction.Ninety minutes of embedded training each week will support teachers as they implement **GROW** strategies with

fidelity and ensure thateducators are fully versed in targeted emergent learning strategies and cutting edge educational and assessment applications for new technologies.

Strategies	GROW Activities
Personalized Learning Environments for all students K-12.	Tech-enabled ongoing assessment for all students will provide educators with the data needed to drive instruction at the group and the individual level. Educational technologies and project-based learning will allow students to progress at an individual pace.On average, students K-12 spend 60 minutes each day in the Learning Lab, completing foundational tech-supported instruction in core subjects targeted to their unique personal learning needs.
Students K-12 learn in a technology-rich environment.	Schools will support a 1:1 student to device ratio, ensuring all youth have appropriate access to cutting-edge technologies that are portable to their home environment and will assist with exposing students to next generation technology. Tech-enabled learning tools (ePals, eAdvisor, Skype, eBooks, etc.) will be incorporated into the core curriculum. Ongoing professional development will prepare educators to integrate these powerful educational resources into the Common Core.
STEM Immersion for all students K-12.	Innovative technologies are used to deliver STEM instruction, including Eno Boards, computers, handheld devices, and diverse software applications. STEM behaviors are introduced through project-based learning in elementary grades, and strengthened with the acquisition of disciplinary knowledge and application in middle grades as content experts deliver the core curriculum. Middle school students are taught by content area specialists in science and math, and engage in project-based learning with STEM applications. At Poly Middle School, students spend 90 minutes each day in STEM Exploratory, building the Habits of Mind necessary for STEM success. At the high school level, STEM immersion will continue as students benefit from the strong partnerships with ASU, graduate students, faculty, and industry experts as they complete authentic learning experiences through unique projects focused on STEM concepts.
Families become key partners in the learning journey K-12.	To support UPSI's annually required 30 volunteer hours at their child's school, new technologies will assist with addressing communication gaps between families and school, overcoming language barriers and accessible 24/7. A Help Counter will be available on-campus to assist parents with tracking and organizing their hours. Through Tech Prep U, students will assist in these efforts, bringing real-life applications to their technology expertise. Families can complete the 10-week American Dream Academy program offered at ASU, introducing families new to the US to effective strategies for being a successful parent advocate. Student created STEM To Go activity kits will provide remote hands-on learning opportunities.

Individually, **GROW** strategies have been implemented, evaluated, and reported successful in promoting student academic gains through isolated studies (pages 5&6). Taken together, in a comprehensive and fully integrated P-20 format, however, **GROW** represents a novel approach

to promoting positive student outcomes, narrowing the achievement gap among sub-groups as demonstrated by UPSI's assessment data.

(2) The potential contribution of the proposed project to the development and advancement of theory, knowledge, and practices in the field of study. (34 CFR 75.210)

GROW represents a vertically alignedP-20immersion in educational technologies, STEM-integrated curricula, and project-based authentic learning for a personalized educational environment. Coupled with a strong focus on family involvement within the school and at home, **GROW** will strategically link four unique strategies that have, independently, been shown to improve student outcomes. Although the roots of **GROW** are planted firmly within educational methodologies that have been proven effective independently, this study will measure the impact of all four strategies delivered in a comprehensive P-20 format –an entirely new approach to instruction with the potential for dramatic gains among targeted high-poverty, minority youth, and continued success for the highest performing youth. **GROW** was designed to blend these strategies to meet the unique needs of UPSI students, and will generate new evidence that legitimizes the positive impact of this unique innovation in teaching and learning. Education experts have long lamented the difficulties associated with pinpointing empirical data to support the case for mobile learning in schools—a trend that educators have been exploring for several years now—let alone data to support even newer technologies such as tablet computers like the iPad. The studies that do look at the effects of mobile technologies on learning are often based on small samples of students involved in short-term pilots, not the kind of large-scale, ongoing samples of students that educators and policymakers would like to see[ii]. The replication potential of **GROW**, supported by a rigorous evaluation, could provide the large-scale ongoing data policymakers desire. The chart below summarizes evidence supporting **GROW**.

GROW Strategies	Research Basis
Tech-enabled	A meta-analysis of more than a thousand studies regarding personalized

Personalized Learning Environments for all students K-12.	online learning was released by the U.S. Department of Education in 2009, followed by a revised version of the report in September 2010. That study concluded that students in online-only instruction performed modestly better than their face-to-face counterparts, and that **students in classes that blended both face-to-face and online elements performed better than those in solely online or face-to-face instruction.**[iii]Research shows that **tech-enabled games and simulations provide a way for students to picture themselves in career paths they otherwise would not have chosen, especially in the STEM subjects**, while simultaneously offering students a way to connect what they are learning in class to (simulated) real-world situations in a safe and low-cost environment.[iv]Researchers have also found that **tech-enabled games and simulations help students learn** by helping them visualize processes they otherwise could not see, such as the flow of an electron or the construction of a city. **Games promote higher-order thinking skills**, such as collaboration, communication, problem-solving, and teamwork.[v],[vi]Technology tools are making it quicker and easier than ever to create digital portfolios of student work—a method of showcasing student progress that experts say increases student engagement; promotes a **continuing conversation about learning between teachers, parents, and students; and extends academic lessons beyond school walls**.[vii]
Students K-12 learn in a technology-rich environment.	
Tech-enabled STEM Immersion for all students K-12.	
Families become key partners in the learning journey K-12.	When schools and families work together to support learning, **children tend to do better in school**, stay in school longer, and like school more[viii]When schools engage families in ways that improve learning and support parent involvement at home and school, **students make greater gains**.[ix] When schools build partnerships with families that respond to parent concerns, honor their contributions, and share decision-making responsibilities, they are able to sustain connections that are aimed at **improving student achievement**.[x]

As shown above, each unique component of **GROW** is supported by a solid research basis. However, to-date, research has not been conducted to measure the impact of these strategies as fully integrated components of a vertically aligned instructional model. Combined together in a comprehensive P-20 design with the full support of ASU, this innovative program has the potential to dramatically improve academic outcomes for high-risk youth and continue the trajectory of success for high-performing students, closing the gap and raising the bar overall.Ongoing evaluation activities, conducted by a leading external evaluation firm with extensive experience in monitoring i3 projects, will provide both formative and summative analyses of project impact on student learning and teacher effectiveness through qualitative and

quantitative sources. UPSI will disseminate an **Annual Report** that includes the highlights from quarterly evaluation reports that illustrate movement towards project benchmarks and objectives, while focusing on any and all achievement gaps among student sub-groups. Each year, **GROW** reports will be shared with the educational community to further knowledge on the theory and practice of the comprehensive design through a variety of sources. UPSI educators and ASU faculty will present findings at regional and national conferences, including but not limited to: the National Council of Teachers of English Conference, the ACT Explore Conference, and the annual conference of the Northwest Inland Writing Project. Articles will be prepared and submitted to: Office of Education Technology, US Department of Education, *Phi Delta Kappan*, and *ASCD Educational Leadership.*At the conclusion of the project period, UPSI will disseminate a 3-year **Project Impact Report** through established channels, and Slate Magazine.

(3) The extent to which the proposed project will substantially improve on the outcomes achieved by other practices, such as through better student outcomes, lower cost, or accelerated results. (2013 i3 NFP)

Over the past three years, UPSI has laid the foundation for **GROW** – and the preliminary results have been dramatic. The chart below illustrates the real change between 2010-2013 for Phoenix students Grades 3-8 when compared to Arizona statewide performance on math, reading, and science assessments.

Grade Level	AZ Math Growth	Phoenix Math Growth	AZ Reading Growth	Phoenix Reading Growth	AZ Science Growth	Phoenix Science Growth
3	+3	**+42**	+2	**+36**	N/A	N/A
4	+1	**+21**	+5	**+34**	-3	**+40**
5	+4	**+27**	+7	**+17**	N/A	N/A
6	+7	**+32**	+3	**+25**	N/A	N/A
7	+8	**+26**	+8	**+23**	N/A	N/A
8	+1	**+23**	-2	**+13**	+8	**+28**

As indicated above, the foundational application of **GROW** strategies and activities have dramatically reduced the achievement gap for students at low-performing UPSI schools, bringing

the statewide ranking of two of our Phoenix-based schools from a "D" to a "B" in just three years. Our third Phoenix-based school, the high school, earned an "A." **GROW** strategies substantially improve student outcomes – especially among the highest-risk, lowest-performing student sub-groups. UPSI students are achieving proficiency on state assessments in record numbers, indicating they are prepared to succeed at the high school level, and are on-track to meet college expectations without remedial coursework. **GROW** strategies implemented at the foundational level have helped traditionally high-performing students maintain and accelerate their success trajectory. Students at UPSI's Polytechnic schools have historically performed at or above statewide averages on standardized assessments, and were recently awarded "A" grades at all three campuses. Over the past three years, as the four key **GROW** strategies have taken root in high-performing UPSI schools, these students have continued to achieve at accelerated rates. For example, the cohort that completed the Grade 6 Math AIMS Assessment in 2010 achieved an 88% proficiency rate. In 2013, this same cohort of students achieved an 88% proficiency rate on the Grade 10 Math Assessment, and **a 100% proficiency rate in both reading and writing**. Grade 10 students at Polytechnic **doubled** statewide proficiency levels in the Arizona State Science Assessment, achieving an 81% passing rate, compared to a statewide rate of only 39%. **GROW** strategies are working.

Implemented at a small-scale level, **GROW** strategies havesignificantly closed the achievement gap in UPSI schools – allowing high-need students to receive the individualized instruction and support they need to make dramatic gains and meet grade level expectations, while simultaneously allowing high-performing students new opportunities to progress at an accelerated rate.More than simply a "remediation" program or an "enrichment" program, implementing **GROW** at full-scale can impact the national education community by sharing a

comprehensive,**P-20vertically aligned blueprint**thatnarrows performance discrepancies and allows all students to reach their full potential.

The unique format of **GROW** capitalizes on extending learning through a school day that is 45 minutes longer than state law requires, providing 90 minutes each week of embedded "Cluster" Professional Learning Communities (**PLC**)for all educators, and requiring 30 hours of parent volunteer hours. **GROW** has the potential to dramatically improve long-term expectations for low-performing schools across the nation – while continuing to support and challenge students who are already meeting standards in core subjects. UPSI is already working with other charter and local school districts, like the Phoenix Elementary School District, to extend the impact of **GROW** strategies through joint professional development activities. Findings are also being utilized by faculty at ASU, where results are driving instructional reform in teacher training, preparing future educators to be more effective.

During the initial project period, **GROW** will directly impact 2,000 studentsannually – delivering tech-enabled learning strategies that will accelerate student achievement at all baseline levels and prepare young learners for post-secondary success.The diverse student population at UPSI-Phoenix, with large percentages of economically disadvantaged, minority and ELL students, provides an ideal testing environment for a comprehensive educational strategywith the potential for national impact. Ongoing evaluation of qualitative and quantitative data sets, broken down into sub-group data tracks and analyzed quarterly for progress towards benchmark measures, will create a tangible **GROW Action Plan**, which will be disseminated widely. Detailed evaluation data, combined with the project management plan and implementation structure, will provide a blueprint for replication, paving the way for **GROW** to significantly impact the educational community nationwide.

B. Quality of the Project Design (Up to 25 Points)

(1) The extent to which the proposedproject addresses the absolute prioritythe applicant is seeking to meet. (2013i3 NFP)

GROW addresses**Absolute Priority 7—Effective Use of Technology, part A**, providing access to learning experiences that are personalized, adaptive, and self-improving to optimize the delivery of instruction to diverse learners.**GROW** components include:

Professional Development will be the cornerstone of **GROW**, as educators take part in 90 minutes of embedded "Cluster" trainings each week. Skype technology, SMART Boards, and handheld devicesare already in use, connecting educators at all campuses and expanding output. Teachers will gain knowledge on the integration of technology into the curriculum, particularly as it impacts teaching and instruction, pedagogical innovation, the interpretation of curriculum goals and objectives, and assessment practices. Ongoing trainings supported on-site and in the classroom by the project-funded Tech Coordinator, will ensure teachers have the guidance and feedback necessary to ensure fidelity of implementation in all **GROW** technology applications – instructional and assessment.
Technology-Based Learning Management System, integrated P-12 at all schools, will support a personalized learning environment for all students. The program will be linked to unique student portfolios that follow students throughout their educational career, and subsequent individual learning plans. This is integral to maintaining the personalized, adaptive and self-improving elements of effective technology integration. The LMSwill allow educators to quickly and efficiently determine student growth and learning gaps in real-time, permitting teachers to immediately address gaps individually with the student and parent, while continuing to advance the student in class. The LMS is aligned to the framework of the Cambridge International Curriculum for grades K-8, detailing a comprehensive set of progressive learning objectives for science, math, and English for each grade level. High school students will be monitored according to the Board Examination System, already in place at all 9-12 campuses.
Learning Lab / STEM Exploratory will take place daily for all students K-12, averaging 60 minutes to address their unique instructional needs through a variety of standards-aligned and tech-enabled learning tools. At Polytechnic Middle School, students Grades 7-8 also complete 90 minutes of STEM Exploratory class each day. In both courses, students work independently with a personalized "Play List" of educational games, skill builders, and test preparation tools in the school computer lab, well-stocked with technology resources AND a highly qualified teacher prepared to deliver one-on-one instruction as necessary. Each "Play List" is assigned by classroom teachers, based on the Learning Management System recommendations to build core content skills, providing additional instruction for students struggling to master concepts, and enrichment instruction for students that have mastered grade-appropriate content.
Educational Technology Devices will play a key role in supporting students as they develop self-efficacy and personal responsibility for learning, in addition to supporting UPSI's "advance when ready" approach. All students, K-12, will be provided a portable device for use in school and at home, bringing new on-the-go applications featuring video and games to build "concept fluency" anytime, anywhere. Schools will integrate technology to create the "classroom of the future" on all campuses, providing both ubiquitous and virtual technology. **GROW** technologies will be part of a device-agnostic platform, allowing for plug and play, interchangeable parts, the

integration with emerging technology and software while embracing the use of the variety of technology that usually accompanies today's digital students to school and back home where the learning can continue. This platform will provide flexibility for connections to other programs, allowing the **GROW** system to federate to others without requiring a change to their infrastructure or requiring a specific platform. Tech Prep U will allow families to access tech support, while showcasing student expertise in devices and software applications. Device-agnostics and multiple online learning applications will allow **GROW** to create a virtual classroom, bringing school to students wherever they may be.

Hybrid Virtual and Full Virtual Learning Opportunities will provide students with faculty led instruction and digital access anytime over any device through the UPSI virtual infrastructure. Relevant to all students, digital learning opportunities will provide academic supplements, software, enrichment, and opportunities to earn college credit in a variety of potential college disciplines. The accessibility of otherwise unavailable courses, credit recovery, or credit acceleration through hybrid and full virtual learning will lead to achieving graduation rates that are higher than state and national averages, in addition to building efficient cost models for teaching content. Through **GROW**,UPSI's in-school classrooms will evolve to flexible spaces serving a variety of purposes. Students will be able to access and integrate technology into any subject, as classrooms maximize interactive media technologies to allow for worldwide video-conferencing. When fully implemented, students will be able to connect with other students and researchers from across the city, or from around the world. Currently, students utilize a variety of new, cutting-edge learning technologies, including the *Knewton* online math tool, interactive eBooks, ePals to connect with students across the globe, and *Vocabulary Builder* to strengthen language skills. Educators are able to support individualized virtual learning strategies through the addition of the *Assessment to Instruction Planning Tool*.

Project-Based Learning, will intentionally integrate the STEM Habits of Mind in the annual Summative Project for students K-8 and the Capstone Project for high school students. Technology-supported research, outreach, and dissemination will be essential for all project-based learning activities. Students will learn how to build tech apps to meet specific needs, and will train others to use them through Tech Prep U. Summative and Capstone Projects will provide students with the opportunity for deeper learning in a subject that interests them, as they become proficient at using technologies that support their research, their connections to others, and their proficiency in future workplace settings. All K-12 students will research, design, and implement a unique project each year, aligned to their interests and strengths. High school students will pursue an authentic learning experience demonstrating content from all core subjects with opportunities to receive guidance from ASU graduate students, faculty, and industry experts as appropriate to their selected Capstone topic, both in person and virtually. Industry partners have been meticulously cultivated, and currently include: Intel; IBM; Flagship Inc.; Arizona State University; Arizona Science Center; Freeport McMoRan Copper and Gold; Target; Mollen Foundation; Roosevelt Row Community Association; Phoenix Symphony; Mesa Arts Center; Helios Foundation; Virginia G. Piper Trust; and the Children's Museum of Phoenix. Partners provide research guidance and academic apprenticeship opportunities for students.

K-12 STEM Focus will utilize technology devices and software to immerse students in the habits, skills, and content needed to succeed in today's increasingly technology-based workforce. Students will receive STEM-focused instruction K-8, with classroom instruction and authentic lab experiences in preparation for high school apprenticeship opportunities in a variety of STEM industries and STEM-related degree-granting programs at ASU. **GROW** will create bridge

opportunities connecting students at all levels to STEM careers and degrees through ongoing opportunities with hands-on and authentic learning experiences. All students will explore concepts and careers in sciences, technology, engineering and mathematics. Beginning in Grade 7, students will also develop their own teaching modules to share core curriculum concepts with younger students and their families. In high school, UPSI students utilize the ASU state of the art Science and Technology labs to support hands-on learning.

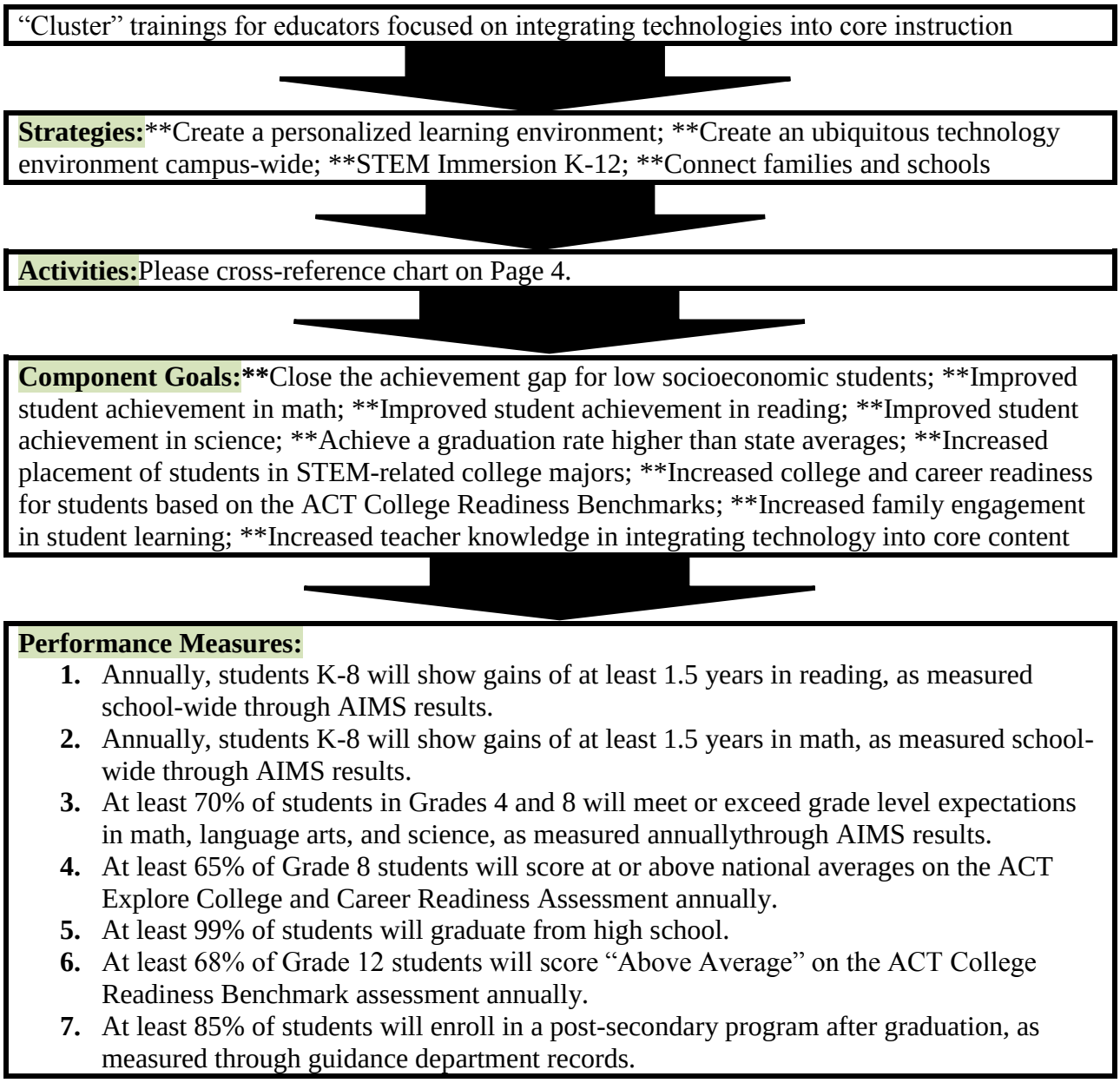
Family Engagement Opportunities are essential to the long-term impact of **GROW**. Schools and families will work together to improve student outcomes. At the Phoenix campuses, approximately 70% of targeted families live in poverty, based on Free / Reduced Lunch statistics. These families do not have reliable access to technologies, increasing the importance of portable student devices at a 1:1 ratio. Through portable devices and a UPSI-sponsored app, families will have full access to school communications, the LMS, teacher web pages, and their student's unique portfolio. **GROW** will bring new software to UPSI schools that will overcome language barriers, allowing families to communicate with school faculty and administrators through digital translation. **GROW** will also bring a new parent tracking function to the LMS, allowing families to monitor their movement towards their annual required commitment of 30 volunteer hours on their child's campus. Families will be able to learn and practice using technologies at the Tech Prep U Center, where translation software will bridge the gap between English and Spanish, and students who have demonstrated an expert understanding of educational gaming and emerging technologies will guide peers and families in utilizing these powerful tools to meet their learning needs.

The **Effective Use of Technology** is inherent in all components of the **GROW** design. UPSI and project partners have created a unique blend of technology-supported strategies that have proved to positively impact similar groups of low-income, minority students nationwide. As illustrated above, **GROW** will utilize technology to provide access to learning experiences that are personalized, adaptive, and self-improving to optimize the delivery of instruction to diverse learners, closing the achievement gap and accelerating high performers.

(2) The clarity and coherence of theproject goals, including the extent towhich the proposed project articulatesan explicit plan or actions to achieve itsgoals (e.g., a fully developed logicmodel of the proposed project). (2013 i3NFP)

The overarching goal of **GROW** is to promote long-term replicable improvements in student academic outcomes through effective use of technology.The following Logic Model illustrates specific performance measures, as well as the inputs, strategies, activities and component goalsthat will support their attainment throughout the project period.

Inputs / Resources: **Project Director; **1:1 Technology Devices for all students; **Technology that closes communication gaps between families and schools; **Weekly



As the above Logic Model demonstrates, UPSI is prepared to "hit the ground running," implementing **GROW** at full-scale upon notification of award. The **Leadership Team**, including UPSI, a team of evaluators from Educational Policy Institute experienced in i3 project monitoring, representatives from project partners including Arizona State University andthe Arizona Science Center, and industry partners represent some of the highly qualified professionals uniquely suited to deliver **GROW** with fidelity. Efforts will make a dramatic impact on the 2,000students targeted throughout the project period, with a secondary impact of

nationwide potential upon successful documentation of strategy results.**GROW** will address the nationwide need to inform HOW teachers teach, and HOW student learning is impacted.

(3) The clarity, completeness, andcoherence of the project goals, andwhether the application includes adescription of project activities thatconstitute a complete plan for achievingthose goals, including the identificationof potential risks to project success andstrategies to mitigate those risks. (2013i3 NFP)

As described above, the overarching goal of **GROW** is to promote long-term improvements in student academic outcomes through the component goals outlined in the table below, in a fully replicable model. The chart below illustrates the component goals, and the specific activities UPSI will undertake to achieve those goals, and potential barriers and strategies to overcome them.

Component Goals: Close the achievement gap for low-income students; Improved student achievement in math, reading, and science, supporting continued success for high-achievers	
Activities	**Potential Barriers / Strategies**
✓ Class and individual instruction driven through tech-enabled ongoing assessment. ✓ Project-based learning and unique learning "Play Lists" allow all students to progress at individual levels. ✓ Students K-6 spend 60 minutes daily in the Learning Lab focused on tech-supported instruction in core subjects, aligned to their personal strengths and weaknesses. ✓ Schools achieve a 1:1 student to portable device ratio.	Intensive, ongoing support must be provided to ensure classroom teachers have the skills necessary with targeted technologies to promote fidelity. ✓ 90 minutes of embedded "Cluster" training weekly ✓ Technology Coordinator will work with teachers in their classrooms ✓ Online PLC will provide a resource-sharing forum accessible 24/7.
Component Goals: Increased graduation rate; Increased placement in STEM-related college majors; Increased college and career readiness based on the ACT College Readiness Benchmarks	
Activities	**Potential Barriers / Strategies**
✓ Tech-enabled, project-based learning,P-5 to introduce STEM behaviors. ✓ 6-8 focus on the acquisition of disciplinary knowledge and application. ✓ Tech-focused STEM Exploratory sessions scheduled 90 minutes per day 6-8. ✓ High School focus on tech-enabledSTEM immersion and authentic learning experiences with guidance from ASU faculty, graduate students, and industry experts. ✓ Technology devices and software to support	Time constraints are the greatest barrier to implementation. ✓ Schools maintain an extended schedule, with 45 additional instructional minutes daily. ✓ All targeted schools hold classes four weeks longer than the traditional schedule. Face-to-Face instruction is necessary, with direct connections to the "real world." ✓ Strong partnerships with ASU and

additional STEM opportunities after school ✓ STEM Academy option at middle / high school ✓ Virtual application tools: *Knewton* online math, Interactive eBooks, ePals, *Quest Atlantis*, and In2Books Software that matches students to mentors.	STEM industry experts will bring students into ongoing contact with STEM professionals, introducing students to technical career fields. Learning to build technology is essential to understanding root functions of usability. ✓ Students design apps and teach operability at Tech Prep U
Component Goals: Increased family engagement in student learning	
Activities	**Potential Barriers / Strategies**
✓ All UPSI families will be required to complete 30 volunteer hours at their child's school annually. ✓ Help Counter technology will allow parents to track their volunteer hours. ✓ New technologies will close communication gaps between families and school, overcoming language barriers and accessible 24/7. ✓ New technologies will allow families to track student progress through apps developed by students in Tech Prep U, utilizing portable student devices. ✓ App will also be compatible with Smartphones. ✓ Families will be invited to complete the 10-week American Dream Academy program offered through ASU, which teaches families who are new to the United States effective strategies for being a successful parent advocate to ensure college readiness for their children.	Language barriers prevent a large percentage of UPSI families from communicating with school professionals. ✓ New translation software will be incorporated into the UPSI Learning Management System and communication program. High levels of poverty prevent families from obtaining portable technology devices to facilitate communication. ✓ All students will receive a portable technology device for use at school and at home. Families are unaware of the impact they can have on academic success for their children by being involved and having deep knowledge of college-ready information. ✓ The American Dream Academy will train families to be parent advocates.
Component Goals: Increased teacher knowledge in integrating technology into core content	
Activities	**Potential Barriers / Strategies**
✓ Ongoing professional development will take place 90 minutes each week in an embedded format, preparing educators to integrate powerful technology-based educational resources into the Common Core. ✓ An online "Cluster" forum will be established, accessible through unique login and password, allowing educators to share lesson plans, successes, and challenges 24/7 with professional peers in all targeted schools.	Ongoing training must take place, with opportunities for personalized instruction. ✓ The Technology Coordinator will "push-in" to core classrooms, modeling strategies as necessary. ✓ Online PLC will promote resource sharing and lesson plan collaboration among teachers at all sites. ✓ Technology will enhance video conferencing capabilities

C. Quality of the Management Plan (Upto 15 Points)

(1) The extent to which themanagement plan articulates keyresponsibilities and well-definedobjectives, including the timelines andmilestones for completion of majorproject activities, the metrics that willbe used to assess progress on an ongoingbasis, and annual performance targetsthe applicant will use to monitorwhether the project is achieving itsgoals. (2013 i3 NFP)

The Project Management Plan is below:

Timeline	Milestone / Activity	Responsible Party
January 2014	Receive Grant Award Notification and communicate to all stakeholders	Project Coordinator (**PC**) and Advisory Team (**AT**)
January 2014	Budget finalized, training completed on spending procedures and required documentation submission	PC
January 2014	Finalize contract and data collection timeline with external evaluator, begin ongoing evaluation activities	PC
January 2014 and Annually	Purchase necessary project supplies and technology devices for implementation	PC
February 2014	Weekly embedded "Cluster" Trainings begin	Technology Coordinator (**TC**)
February 2014	Launch the online PLC for educators	TC
March, June, September and December Annually	Quarterly Evaluation Report presented, utilizing real-time data to measure movement towards benchmarks. Modifications made based on any and all performance gaps	External Evaluator (**EE**) and AT
December Annually	Submit Performance Report	EE and PC

The following chart illustrates the metrics that will be used to assess progress on an ongoing basis, including annual performance targets measuring success.

Annual Performance Measures	Periodic Benchmarks
1. Annually, students K-8 will show gains of at least 1.5 years in reading, as measured school-wide through AIMS results.	Quarterly, at least 80% of students K-8 will demonstrate growth of at least 0.375 grade levels in reading, as measured through the online Learning Management System and compared to individual baseline data collected in Month One and recorded in the Student Portfolio.
2. Annually, students K-8 will show gains of at least 1.5 years in math, as measured school-wide through AIMS results.	Quarterly, at least 80% of students K-8 will demonstrate growth of at least 0.375 grade levels in math, as measured through the online Galileo Assessment tool and compared to individual baseline data collected in Month One and recorded in the Student Portfolio.
3. At least 70% of students in Grades 4 and 8 will meet or exceed grade	Quarterly, at least 75% of students in Grades 4 and 8 will earn a "Proficient" or "Highly Proficient" report

level expectations in math, language arts, and science, as measured annually through AIMS results.	card score in math, language arts, and science.
4. At least 65% of Grade 8 students will score at or above national averages on the ACT Explore College and Career Readiness Assessment annually.	Quarterly, at least 70% of Grade 8 students will meet or exceed grade level benchmarks for mathematics as measured through the online Galileo Assessment tool.
5. At least 99% of students will graduate from high school.	Quarterly, school-wide attendance levels will meet or surpass 95%. Quarterly, behavioral incidents will remain at least 2% below baseline data to be collected in Month One.
6. At least 68% of Grade 12 students will score "Above Average" on the ACT College Readiness Benchmark assessment annually.	By February annually, 100% of Grade 11 students will complete a sample ACT test. By March annually, 100% of Grade 11 students will identify at least two colleges that they are considering. By October annually, 100% of Grade 12 students will apply to at least one college.
7. At least 85% of students will enroll in a post-secondary program after graduation, as measured through guidance department records.	

UPSI educators are already working to incorporate educational technologies into the core classroom, capitalizing on embedded STEM instructional opportunities to promote crucial development of the STEM Habits of Mind. Through **GROW**, efforts will expand and align within a comprehensive P-12 model as teachers take part in an intensive PLC online and face-to-face in weekly embedded "Cluster" training sessions. Individualized learning, taken to new levels through the incorporation of educational technologies and management programs, will continue to bolster student achievement as UPSI showcases the innovative **GROW** model – demonstrating the potential for national replication.

(2) The extent of the demonstratedcommitment of any key partners orevidence of broad support fromstakeholders whose participation iscritical to the project's long-termsuccess. (2013 i3 NFP)

Partnerships are essential to the long-term success of **GROW**. Flagship Facility Services has dedicated $50,000 in matching funds to the project, as evidenced by the letter of support included in Appendix G. In-kind support valued at $7,500 each year has been pledged by the Arizona Science Center. In2Books has pledged $100,000 in in-kind services and products over

the project period. In total, UPSI has already raised $262,500 in matching funds from project partners, (detailed in the budget narrative, please cross-reference), including:

Partner	Amount	Details
Flagship Facility Services, Inc.	$50,000	Cash Donation to support activities
In2Books	$100,000	In-Kind contribution
AZ Science Center	$37,500	In-Kind contribution
Intel	$10,000	Cash Donation to support activities
Salt River Project	$15,000	In-Kind contribution
ASU Prep PTSO (501c3)	$50,000	In-Kind contribution
TOTAL	**$262,500**	

Letters demonstrating project support from a wide variety of community stakeholders are included in Appendix G, please cross-reference.

(3) The adequacy of procedures forensuring feedback and continuousimprovement in the operation of theproposed project. (34 CFR 75.210)

As shown in the Project Management Plan above, the Washington, DC-based Educational Policy Institute (EPI) will serve as our external evaluator for the project. As EPI will be an integral component of the rigorous, continuous UPSI improvement process by conducting both formative and summative evaluation activities covering all the major activities of the project. The external evaluator will provide timely and regular feedback on progress towards project goals, with embedded opportunities for ongoing corrections and improvements during and after the initial funding period. Working with the Project Coordinator, EPI will monitor, measure, and publicly share information on the quality and impact of **GROW** activities.

EPI has extensive experience in monitoring successful federal projects, including i3 and RTTT projects. The table in Appendix J (please cross-reference) lists the evaluator's experience relevant to evaluating this project. Specifically, the evaluator has experience in federal grant evaluation and reporting (i.e., to provide a strong evaluation structure as required by the federal government); experience evaluating programs of similar content to the **GROW**project (i.e.,

targeting minority achievement and retention with a focus on science, technology, engineering, and mathematics); and more general experience in testing, measurement, and evaluation.

Both qualitative and quantitative data sets will be collected monthly and submitted to the external evaluator for analysis and to create detailed reports, facilitated by the technology-supported Learning Management System. The external evaluator will submit Quarterly Evaluation Reports to the Advisory Team, who will utilize results to drive program modification to promote full attainment of stated goals, objectives, outcomes and performance measures.

All data (including academic, attendance, social, and behavioral student data, along with teacher and parent surveys, teacher observation reports, "Cluster" agendas, and online PLC hits) will be formatted and analyzed to uncover trends, strengths, gaps, and weaknesses among NCLB sub-groups, grade bands, subjects, and campuses. Data sets will be directly related to associated performance measures and overall project goals. Comparative charts, graphs, and summaries will highlight successes and challenges, providing the Advisory Team a jumping off point for each quarterly meeting to analyze project impact and movement towards performance measures. The Advisory Team, led by the Project Coordinator and including UPSI representatives, ASU representatives, community stakeholder representatives, principals, industry leaders, teachers, and volunteer parents and students, will have the authority to suggest modifications to project activities to better meet the needs of administrators, classroom educators and students, based on analysis of real-time evaluation data. The Chief Executive Officer will have the final decision regarding any and all changes in **GROW** project activities.

D. Personnel (Up to 10 Points)

(1) UPSI has selected expert staff members best suited to leading and promoting full attainment of **GROW** project objectives, as outlined on the qualifications chart below. The Project Director, Project Coordinator and Technology Coordinator are well-practiced in implementing

and overseeing integration of learning technologies to promote STEM instruction and academic achievement, and possess the qualifications and professional experience necessary to make them highly-qualified and the preferred candidate for their positions.The chart on page 18 indicates specific roles and responsibilities, please cross-reference.

Staff	Qualifications
Project Director	Deborah Gonzalez holds a Doctorate in Education, has Administrative Credential, and has served as the Chief Academic Officer of ASU Preparatory Academy since 2010. Her impressive resume is appended.
Project Coordinator	Celeste Enochs holds Arizona State certifications as a teacher, principal, and superintendent. From 2008-2010, she served as a "Turnaround Principal" at a failing school, leading the impressive gain in student academic outcomes through technology-based accountability systems, a new sustainability-based infrastructure, a new and strong focus on parental involvement, and responsive monitoring of student progress through technologies. Her impressive resume is appended.
Technology Coordinator	Patrick Pettyjohn holds a PhD from Indiana University, and specializes in learning context design, technology integration, and supporting inquiry teaching. He spent five years as the Graduate Research Assistant at the Center for Research in Learning Technologies, where he redesigned instructional teacher training, conducted needs and gap analyses for teacher training, and co-authored multiple peer-reviewed publications on online games and learning. His impressive resume is appended.

E. Quality of Project Evaluation (Up to15 Points)

(1), (2), and (3): The proposed i3 project is dynamic and complex with many strategies in play to meet the objectives of the grant. As noted, there are six target schools for this project. The strategies involved in the GROW project are previously defined. EPI will document the progress on each of the strategies annually. We propose conducting two types of analysis for this project. The first is a process evaluation, which will evaluate how UPSI implements strategies and conducts the overall project according to original design (e.g., this proposal). Information from this will help UPSI evaluate where they are and make corrections as necessary. The second is an outcome/impact evaluation, which is used to evaluate the impact of the project by measure of proposed goals and objectives attained.We believe in collecting varied and diverse data:

Quantitative Data Collection & Analysis:EPI will collect data from UPSI to provide an

overview of historical trends and create benchmarks for future collection and analysis. The data will include state standardized tests in mathematics, reading, and science, Cambridge End of Course Exams, and ACT batteries. The data will be analyzed per the specifications of the tests. EPI typically uses SPSS software for analysis, but has SAS capability as well. EPI will compare outcomes with both benchmarks from the schools as well as comparisons with other, similar schools as well as the state at large.EPI will collect a variety of data from UPSI schools via document reviews and surveys, interviews, and focus groups. UPSI will be instrumental with providing EPI with memos, reports, and other documents to keep us up to date on protocol and activities. EPI will develop a series of surveys and protocols for interviews and focus groups for students, instructional staff, administrators, parents, and other stakeholders as further defined.

Data Collection Instruments:EPI will produce survey instruments for students, instructional staff, administrators, and parents. EPI will develop, pilot, and administer the surveys during various points in the year as required and decided jointly by UPSI and EPI. Telephone and web-based interview and focus group protocol will be developed for use with those stakeholders. UPSI will provide EPI all test and other academic achievement data for students, including grade point averages (GPA), attendance, and course achievement data. Documents that provide information on program operations and policies will also be forwarded to EPI.

Project Tasks:1. Kick-Off Meeting. A project kick-off meeting will be held virtually with EPI staff and UPSI stakeholders. This meeting is important to help EPI understand the core elements of the project and articulate data collection and measurement procedures.

2. Create Program Logic Model and Detailed Research and Evaluation Plan. Once EPI has had a chance to review the program in detail and discuss with key stakeholders, an updated logic model and detailed research and evaluation plan for the program will be produced.

3. Identify and Create Data Collection Instruments. Once the review and development of a research plan is complete, EPI will create instruments for data collection, including survey instruments, interview and focus group protocols, and define analysis processes.

4. Collect and Analyze Data (annually). EPI will administer all data collection instruments during the year as required and collect administrative data from UPSI. The data will be used to (a) prepare annual reports as well as a final report (2018).

5. Review Implementation Progress. During the first few years of the project, EPI will review UPSI progress to ensure they are keeping to the intent of the grant and implementing strategies on a timely basis and in the manner that they suggested in the proposal. EPI will document changes in strategies and techniques.

6. Write Annual Report (Summer annually). After final data for each given year of the project is made available (typically summer), EPI will prepare an annual report, using the logic model as the guide for describing progress.

7. Write Final Report (Summer 2018). In summer/fall of 2018, EPI will prepare a final report instead of an annual report to document progress of the i3 project over the scope of the project.

8. Participate in Annual i3 Meetings. Each year, the US Department of Education hosts an annual i3 meeting in Washington, DC. EPI will be present for these meetings

The Table that follows provides 24 guiding questions for the evaluation, as well as the data collection method desired.

	Survey	Interview	Focus Groups	Content Review	Admin Data	Description
Technology						
1. Do all students have access to and use the educational technology identified in the personalized learning plans?	X	X	X			Information will be collected from students, instructional staff, and administrators regarding access and use of educational technology. Surveys will be distributed to stakeholders, and interviews and focus groups will be utilized to follow-up on critical questions
2. Do the schools have a 1:1 student to device ratio?	X	X	X			
3. Do K-12 students spend an average of 60 minutes each day in the Learning Lab?	X	X	X			
4. Are tech-enabled learning tools embedded into instruction?	X	X	X			
5. How effective are the various "innovative technologies" used to deliver STEM instruction (e.g., Eno Boards, computers, handheld devices, and diverse software applications)?	X	X	X			
Software Development						
6. Are personalized learning plans developed for all children?	X	X	X	X		Information will be collected from students, instructional staff, and administrators regarding learning plans, project-based learning, partnerships, and college and career readiness, via surveys, interviews, and focus groups. When applicable, documents will be reviewed to substantiate findings.
7. Are the stakeholders (e.g., teachers, administrators, and parents) satisfied with the personalized learning plans?	X	X	X			
8. Is project-based learning utilized in elementary, middle, and high school?	X	X	X			
9. How effective is the project-based learning?	X	X	X			
10. Do high school students have opportunities to partner and participate with ASU students and faculty, as well as industry experts?	X	X	X			
11. Do students have Increased college and career readiness for students based on the ACT College Readiness Benchmarks?					X	ACT data from the UPSI will be reviewed and analyzed.
Academic Outcomes						
12. Is there a reduction in the achievement gap for low socioeconomic students?					X	Academic achievement data from the UPSI will be reviewed and analyzed.
13. Is student achievement increased in math, reading, and science?					X	
14. Are graduation rates higher than state averages?					X	

15. Is there an increase in the placement of high school graduates in STEM-related college majors?					X	
Teacher Development						
16. Do all instructional staff participate in technology-related professional development?	X	X	X	X	X	Information will be collected from instructional staff and administrators regarding professional development and use of technology via surveys, interviews, and focus groups. In addition, EPI staff will review documents and use administrative data when available.
17. How effective is the professional development?	X	X	X		X	
18. Do teachers have increased teacher knowledge in integrating technology into core content	X	X	X		X	
Parent Involvement						
19. Do the UPSI families complete 30 volunteer hours at their child's school annually?	X	X	X		X	Information will be collected from administrators and parents via surveys, interviews, and focus groups. As well, administrative data (e.g., participation logs) will be collected.
20. What technologies are most useful to instructional staff, administrators, and families?	X	X	X			
21. Is a Help Counter available on-campus to assist parents struggling with devices or software? How effective is the Help Counter?	X	X	X			
22. Do UPSI families take advantage of and participate in the 10-week American Dream Academy program offered at ASU?	X	X	X		X	
23. Are families more engagement in student learning?	X	X	X			
24. Are new technologies used to close communication gaps between families and school?	X	X	X	X	X	Information will be collected from administrators and parents via surveys, interviews, and focus groups. As well, administrative data (e.g., participation logs) will be collected. In addition, EPI will review associated documents.

To assess the impact of this intervention, the external evaluators will utilize a quasi-experimental design. A randomized treatment and control trial is not possible in this context, so a matched treatment and control design will be used, minimizing threats to external and

internal validity using statistical controls and results is in a robust evaluation.

Multi-Site Evaluation:experimental group will consist of six schools predominantly serving high poverty student populations. The six experimental schools are listed on Page 1 (please cross reference). The comparison schools consist of Lowell Elementary and Central High School in downtown Phoenix, and Higley Elementary, Middle, and High School in East Valley Phoenix. The experimental and comparison schools will be matched based upon student level characteristics and aggregated to the classroom and school level. The aggregated samples will be assessed to ensure comparability and allow the external evaluators to evaluate the effects of the intervention with a high degree of reliability. The experimental group will consist of approximately 1,872 K-12 students enrolled in the six previously noted schools. The comparison group will consist of nearly 5,000 K-12 students enrolled in the schools noted above. Given the absence of a pilot study or previous research evaluating the effect size of this or similar programs, the external evaluators set the minimum detectable effect size at Cohen's d=0.20. This effect size falls within the conventional "small" to "medium" classifications utilized in statistical analyses. With a confidence level of 95%, a power level at 0.80, and attrition at approximately 20%, the minimum sample required is approximately 400. The experimental and comparison sample sizes designated in this intervention exceed this minimum requirement.

The impact of this intervention will measure changes in math and reading scores for students enrolled in grades 3rd -8th in the **GROW** program. The hypothesis for this evaluation is that the **GROW h**as a positive impact on the math and readings cores for students participating in the program. The unit of analysis is at the student level and program effects will be measured at the student, classroom and school level using multi-level regression modeling. The changes in student math and reading scores in **GROW** will be compared to Arizona statewide performance on math and reading.

---

[i] Vidano, Gonzalo, Ph.D., and Professor Massoud Sahafi, Ph.D.,
Parent Institute for Quality Education Organization Special Report on PIQE's Performance Evaluation, San Diego State University, December 2010.
[ii] Education Week, **"Effective Use of Digital Tools Seen Lacking in Tech.-Rich Schools,"** Feb. 23, 2011.
[iii] U.S. Department of Education, **"Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies,"** 2010.
[iv] Education Week, **"Researchers Evaluate Tech.-Oriented, Personalized Learning,"** Technology Counts report, March 17, 2011.
[v] Massachusetts Institute of Technology, **"Moving Learning Games Forward: Obstacles, Opportunities, and Openness,"** 2009.
[vi] National Academies Press, **"Learning Science Through Computer Games and Simulations,"** 2011.
[vii] Education Week, **"Researchers Seek Faster Answers to Innovative Questions,"** Jan. 12, 2011.
[viii]**New Wave of Evidence: The Impact of School, Family, and Community Connections on Student Achievement** (PDF, 1.19 MB, 241pp) A. T. Henderson & K. L. Mapp. (Southwest Educational Development Laboratory, 2002)
[ix]**Parent Involvement** - Current research on parent involvement and the outcomes. (National Middle School Association, 2006)
[x]**What Research Says About Parent Involvement in Children's Education** (PDF, 252 KB, 4pp) - Highlights the relationship between parent involvement and academic achievement and references Joyce L. Epstein's six types of parent involvement. (Michigan Department of Education, 2002)