

Quantum Teaming®: How to create a virtual internship to provide online students with real-world experience

PGIP-Technology – Purdue University Global

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- Glen Jenewein, MSIT
- Marjorie Furay, MSIT/IS





Agenda



Intro & Overview - Marjorie

PGIP-Technology Overview
Quantum Teaming®



Academic Overview - Glen

Course requirements



Implementation - Marjorie

Onboarding Interns
Technology
Departments



Quantum Teaming®:

How to create a virtual internship to provide online students with real-world experience

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Faculty, CIO, Purdue Global Internship Program

Purdue University Global

Intro & Overview

- ▶ Purdue Global Internship Program – Technology (PGIP-Tech) was launched in December 2015 for School of IT students within their last or last two terms of graduation.
- ▶ PGIP-Tech is a fully virtual experiential internship providing experiences in information technology through the cloud.
- ▶ Students may choose an external company (externship) or can enter PGIP-Tech (internship)
- ▶ The internship is available to graduating associate's, bachelor's and master's students in good standing.
 - ▶ Students who need real-world experience in:
 - ▶ Software Development/Database - SQL, Python, C+ and other programming languages.
 - ▶ Networking/cyber security – Windows, Linux on hosted VPN, firewalls and other security software.
 - ▶ Systems analysis – SDLC, agile, policies and procedures.
 - ▶ IT Support – ticketing system, software training, troubleshooting.
 - ▶ Analytics – data collection and analysis, statistics, modeling, monitoring.
 - ▶ IT Management and/or IT leadership – Director, ITPC, PMT, SPM and department managers.

PGIP-Tech is a **quantum teaming®** environment which is an essential component of its success.

Overview of Quantum Teaming



What We Know About Adult Learners

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What We Know about Adult Learners

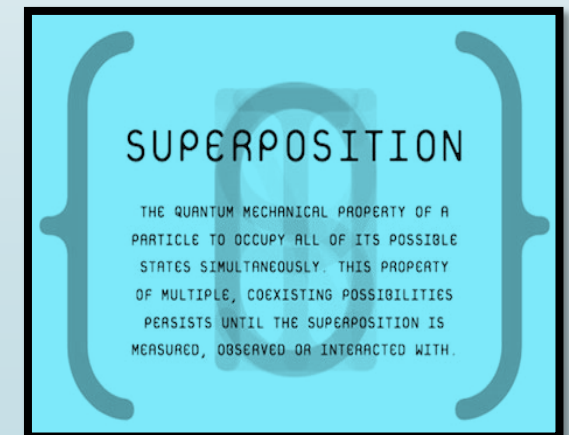
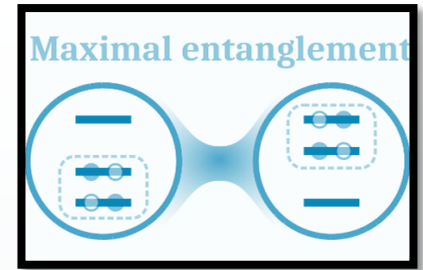
► The Adult Learning Theory – Andragogy – Malcolm Knowles

- 1. Self-concept** - Adults need to be involved in the planning and evaluation of their instruction.
 1. In virtual environments, this translates into providing the infrastructure and environment for adult interns to be empowered:
- 2. Adult Learning Experience** - Experience (including mistakes) provides the basis for the learning activities.
- 3. Readiness to Learn** – Quantum teaming cultivates “Mental Diamonds” through a process of encouraging each adult to fully engage in order to get the most personal gain/satisfaction during their tenure in the experiential internship.
- 4. Orientation to Learning** – Ensure that projects and opportunities have immediate relevance and impact to intern's job, desired job or personal ambition.
- 5. Motivation to Learn** – The PGIP-Technology internship teams consist of associate's, bachelor's and master's level interns with a wide range of different backgrounds and diverse ambitions.

Quantum Teaming Integrates with Andragogy:

3 Cognitive Steps

- Changing *uncertainty into anticipation* – using what you've learned in your academic program and applying your critical thinking to the projects!
- Finding *complementary* ways to achieve your goals and to get involved – *entangling* is how you learn and share KSAs (knowledge, skills, abilities) to be successful!
- You are better together with your team than siloed away from them. This is how you achieve *superposition*!





Example:
PGIP-Tech
"Quantum
Teaming"
Applied



Uncertainty-to-Anticipation

We all enter the internship uncertain. It is not an academic environment but an experiential one. Regardless of your onboarding experience, anticipate your future, engage in orientations, know your manager, and ask questions.



Complement-to-Entanglement

Over a few short weeks of training, you will become entangled in your projects and your team. You will write charters, implement and modify projects and 'own' your success at PGIP-Technology.

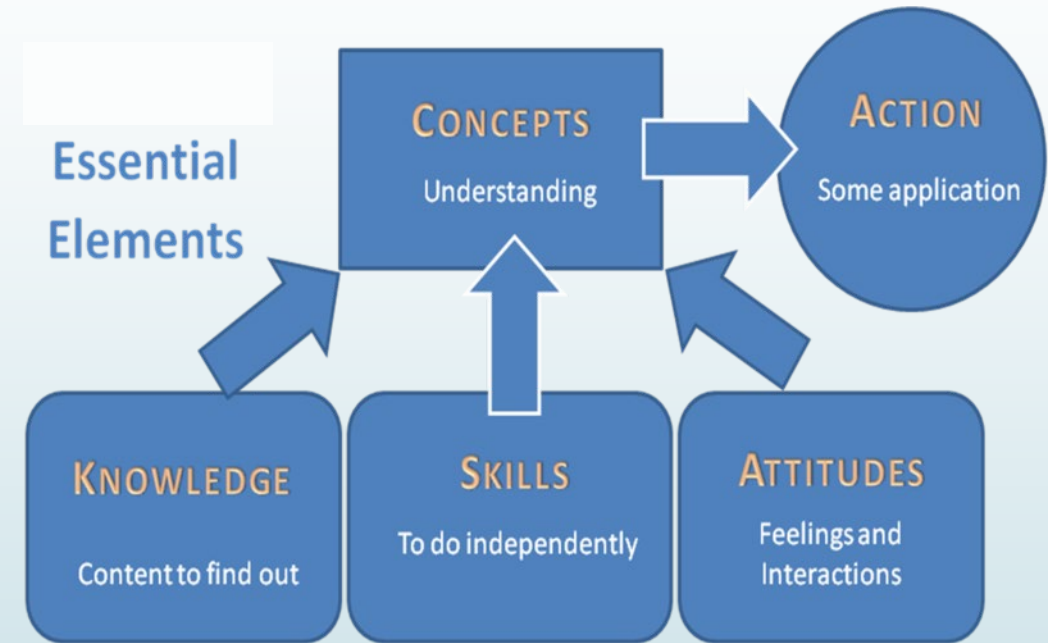


Confidence-to-Superposition

The success of your projects trigger bigger and more integrated projects. You may partner with other interns in your own or other departments. This places you in a superposition in the organization.

Essential concepts in virtual, quantum teaming environments

- A **primary goal** in experiential internships is to have every participant in the team have their voice heard and succeed while sticking to the guidelines of the program, which are:
 - to keep a regular meeting agenda which is facilitated by software assisting the decision process (entanglement);
 - to keep interns entangled through indirect coordination, through the virtual environment, between interns and their actions (superposition);
 - to ensure, from term-to-term, the overall progress achieved in the PGIP-Technology environment by the actions of the previous intern teams stimulates and/or contributes to the performance of the next teams (uncertainty dilemma), by the same or a different cognitive stigmergy.





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VP/Head of Project Management, Purdue Global Internship Program, PGIP-T

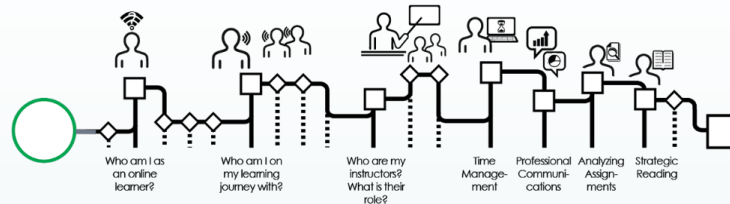


Department Orientations

Available to associate, bachelor and master's students who need real-world experience in both the IT industry field and applications used:

- ▶ **Analytics/Business Development** – (Business Intelligence, SAAS, data engineering and other agents)
- ▶ **Software Development/Database** (C#, Python, PHP, MySQL, SQL and more)
- ▶ **Networking/Cybersecurity** (Cloud hosted AWS or Azure, and other applications)
- ▶ **Project Management/Systems Analysis** (MS Project, MS365 Planner, systems development life cycle (SDLC) Agile (SCRUM/Kanban), policies and procedures)
- ▶ **IT Support** – ticketing system, software training, troubleshooting, MS365 and Azure Fundamentals, Cloud Foundations
- ▶ **Web applications** – Design and creation of websites, CMS, secure log-ins
 - ▶ PGIP-Tech.com & PGIPods.com
- ▶ **IT Management and/or IT leadership** –Director, ITPC, department managers, and team leads, Mgmt. Information Systems, GRCP (governance, risk, compliance or control)

Learning and Management Process



1. All interns begin with two orientations to learn the “company” infrastructure.
2. Interns are required to clock-in and fulfill 10 hours per week.
3. Projects, materials and activities allow for different levels/types of previous experience with information technology, hardware and software.
4. Experiential Internship is task-oriented with real-world project scopes, charters, milestones and deadlines.
5. Internship positions range from Director, Department Managers and Leads through to analysts, developers, DBAs and researchers.
6. PGIP-Technology has a timeclock, ticketing system/FAQ, Planner, SharePoint intranet and employee evaluations. Username and password (SSO/MFA) are given to enter the MS365 environment.
7. Weekly meetings include departmental meetings, weekly AHoD, leadership and maintenance & training (M&T) meetings.



Other components to apply to virtual environment

- ▶ **Metacognition** - higher-order thinking that enables understanding, analysis, and control of one's cognitive processes, especially when engaged in experiential learning.
- ▶ **Flipped classrooms** - typical lecture and homework elements of a course are reversed; in-class time is devoted to experiential learning, exercises, projects, and iteration.
- ▶ **Virtual Group Decision Support System(s) (VGDSS)** - interactive, computer-based system that helps a team of virtual interns solve problems and make choices. GDSS are targeted to supporting groups in analyzing problem situations and in performing group decision-making tasks.



The Academic Side of a Virtual Internship

Glen J Jenewein, MSIT

Undergraduate Professor, SBIT, Purdue University Global

Director of Undergraduate Internship & Externships



Classical Mechanics of Academia

To create a virtual internship, the process requires developing an accompanying course that meets accreditation standards for online academic institutions

Purdue University Global School of IT **flipped** the academic classroom for the virtual internship program.

- ▶ ITxxx (200, 400, & 500 level) is worth the same credit hours as other traditional classes in the program.
- ▶ ITxxx (200, 400, & 500 level) courses require measurable course outcomes and participation hours.
 - ▶ *Asynchronous discussion boards and synchronous seminar components are not required as part of the academic side.*
 - ▶ 10 hours per week requirement for experiential side of the internship
- ▶ Most interns have full-time jobs and families in addition to the rigor of the internship program -- academic and experiential side requires focus.
 - ▶ It is highly suggested that students take the internship course as the last course in the program.



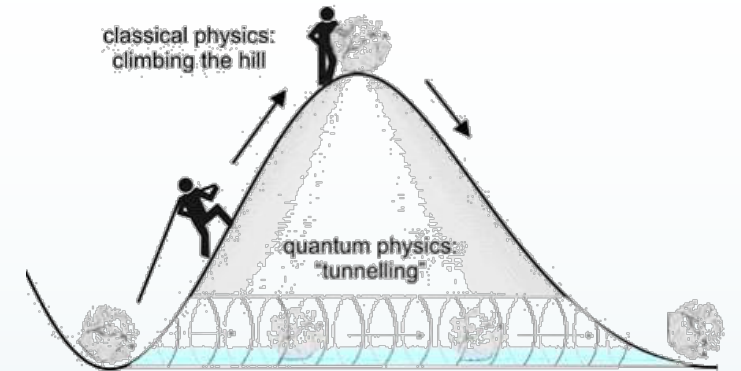
Classical Mechanics of Academia

Purdue University Global IT academic programs which include the Virtual Internship opportunity:

- ▶ Associates in Information Technology
- ▶ Bachelors in Information Technology
- ▶ Bachelors in Cybersecurity
- ▶ Bachelors in Cloud Computing and Solutions
- ▶ Bachelors in Data Analytics
- ▶ Masters in Information Technology
- ▶ Masters in Cybersecurity Management
- ▶ Masters in Data Analytics

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Questions or Comments?



Thank You for Attending!

Additional references/research provided upon request.