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Re-Engineering the Higher Education System:

Personal Introduction:

My name is Satpal Sidhu. I am a professional Engineer with a Master's degree in Business Administration. In 2005, I received a Fulbright grant as Senior Specialist to study workforce education for the 21st century. Today, I am here to submit my ideas and suggestions regarding future structure of WA State's Higher Education system.

My ideas are very basic. These are results of my personal experience as a father of three boys, who have attended three different universities in Washington State. Two of my sons are engineers and one is pursuing a Bachelor's degree in Business. After working for 20 years in the industry, I have been Dean of Professional Technical Education at Bellingham Technical College for the past 5 years. I have also had the opportunity to observe how higher education is organized and delivered in several other countries. These are my personal views and suggestions.

Let me start by the defining basic needs identified by HECB to plan the future of higher education in our state.

The new higher education plan shall meet the future needs:

1. **Serves everyone**
2. **Seamless and easy entry, exit and re-entry**
3. **Affordable**
4. **Personalized education**
5. **Ensures success**

This will require some fundamental re-evaluation of how the higher education is delivered and managed currently, a model developed some 50–60 years ago. The current leaky pipeline of education from grade nine through baccalaureate education has a success rate under 20% at its best. Do we keep patching the leaky pipeline of education or re-engineer new delivery system with multiple pipelines of interconnected flexible gateways and increase the success rate to 80% or better? Many countries have achieved similar success rates with innovative new strategies and investment. What are the long-term consequences of propping up the current outdated system with more money? The cost of inaction would imperil our prosperity, as the future competitive world would not wait for us. Our knowledge is our biggest asset. With the current rate of growth of knowledge, instant proliferation of knowledge and the fast pace of technological developments, United States does not have the advantages of the past over rest of the world. Business enterprises are already blurring the national boundaries and would move where the conditions are best for them to sustain and grow.

The prerequisites of the future education system are that drives greater economic prosperity, innovation and opportunity.

Why Re-Engineering?

A large number of companies today, who employ a significant majority of degreed employees, are akin to of the same age as the students currently attending college, while the education system is akin to the age of their grandfathers.

Today's Baccalaureate education is the same, what the HS education was 50 years ago. I propose a to develop a distributive model of baccalaureate education as compared to current model of few mega higher education institutions.

The current young generation learns differently, they adopt new technologies quickly and are cool with multi-tasking. The education system to match their needs has to different and technology based.

Multi-discipline knowledge has become a necessity in the workplace. This calls for open and easy access to multi-discipline education. A doctor needs to know about electrical engineering, a welder needs to know about Auto-CAD design, a project manager needs skill upgrades in computer software applications, new materials of construction, environmental science, estimating and scheduling and business management. For many obvious reasons, it would make lot of sense for the 4-year colleges and universities to offer these skills and knowledge to incumbent workers, as they already offering it in their regular classes. In the current system it is almost impossible for an employees to take only one or two classes.

So we need to re-engineer the higher education system. In the past 20 years, all major industries have transformed themselves how they conduct their business to stay competitive. Education system has developed and taught the re-engineering concepts to others, but has not applied it to itself. May be the time is now.

We need to define the expected outcomes and re-design the steps of education from entry to graduation. The future education system shall have following characteristics.

- Allow multiple entry, exit and easy re-entry
- Allow multi-discipline education to suit the workplace
- Suitable to work while getting education
- Freedom to choose the major or multiple majors
- Life long learning with or without degree pathway
- Promote and facilitate success for the students.
- Allow students to complete degree in two or four or six years as it suits their individual needs.

Lets see the reasons for the current leaks in the education pipeline

Given the current education system design specifications and operating procedures, our university education system deliberately works for the current results of 20% success rate. This will become clear as I go further. Investing more money on the same basic design will not the change the outcome very much. We have three large silos in education, with strong walls; by this I mean strong vested interests. These silos are K12, Community and Technical College system and the Universities. It is like three siblings of same parent fighting for their share of an estate, even if it means the estate may go bankrupt. The estate

caretakers (the legislators) are more worried about their own future than the estate itself. We cannot just keep funding each silo and hope they cooperate with each other.

Each university in the state is another silo in itself. This demands that the rules for funding mechanism be re-written with expectation of very specific outcomes. Are we ready for these fundamental changes?

Building a College bound culture has some difficulty when only one in three students entering the university freshman class would actually graduate and less than half of them would graduate in their intended major. Would you invest in a venture with 20% odds of success? Something is not right here!!

Here are my suggestions:

Increase the Accessibility to Higher Education

Fifty or sixty years ago, most population lived in small rural communities. Just going and living in major city was an education in itself. It is not so today. Every small community has the same access to all the media, communication, exposure to business, and high school education like any big city.

- Bring BA / BSc to the every community and within reach of every citizen. All new expansion of Baccalaureate FTE's should be local. That means let the Community and Technical Colleges offer Baccalaureate degrees. The graduation rate will double if Baccalaureate education is easily available at the local Colleges.

- CTC's can provide the same quality education like a university.

- Invest in the distance education. Open Interactive TV centers in every community of population 5,000 or more.

- Lower the cost of education, by brining education to the students, where they live and have family support. Students can find work in local communities and support their education

Change the Education Delivery:

- All courses do not have to be taught in parallel. How about teaching them back to back? Like there is math class only on Mondays. The homework does not get done because students have five other subjects to deal with. By the time next Monday come along, they have forgotten what was taught last week. Students will fair much better and understand the subject matter, with concentrated studies.

- Provide a continuous 30 hours per week class schedule for students. Have a math class in the morning and chemistry in the evening for 3 hours a day every day Monday thru Friday for four weeks. This will include time for students to learn in small teams and interact with teachers. This will take care of two 5-credit classes in one month. Then start the next two classes. Have team study projects for learning and practicing.

- Question the utility of quarters and Semesters. Why not have four-week blocks all year round. Have the classes open throughout the year every day of the year including weekends. Let students decide when they want to take the break, how long a break or take time off for internship or work.

- Question the 8 Am to 3 Pm Monday thru Friday schedule? Most of the students come to university / college to learn and earn their degree. So teach them straight for 5 or 6 hours say from 7 AM to 12

noon every day. Students can find steady work in the afternoon. Have another schedule from noon to 5 PM and students can work in the morning.

- Publish the annual class schedule with short 4 to 6 week modules for all degree pathways.

- Allow access to incumbent workers attend these classes as their work schedule allows, to provide them a pathway to get a degree.

Create Open Access to Higher Education

Currently, there are too many rules for exclusion and very few rules for inclusion.

- Allow students at attend different colleges or University, as their circumstances permit.
- Our demographics for next 10-15 years will demand that more and more adults work to support our economy, while they earn their degrees.
- Allow students to do their degree at their own pace, and match the financial aid with that pace.
- Involve local businesses to create stable job opportunities locally. This is more feasible if we do not have 20-30,000 students in one physical location, but have the students spread all over the states.

Revise General University Requirements (GURs)

The current GUR system is repulsive and an impediment to success. There is a maze of departments and classes to choose from. I believe the purpose of Gen Ed is that the all students should graduate with knowledge of social sciences, history, and physical sciences outside of their major. It is not meant to keep them paying the tuition for two years and take lot of courses.

- Create a clear four-year pathways schedule for every major offered at the university.
- GenED should be organized into the entire four-year pathway not packed into first two years.
- Total GenEd requirement shall not be more than 25- 30% of the total degree credits.
- The pre-defined academic standards to followed to maintain a certain GPA to stay in his or her chosen major.
- Provide extra help and tutoring, if one needs it.

The revised Gen Ed rules will enhance success and the majority of students will be able to graduate sooner.

No Hassle Transferability within the State

- Allow easy transfer of any number of credits from one institution to another in the state?
- All courses under 100, 100, 200 and 300 series shall have common numbering system across the state.
- All baccalaureate curriculums should be freely shared and exchanged among all educational institutions in the state.

Something about Teachers:

- All lower division class size shall be under 50.
- Teaching is an art and a skill. Each person wanting to teach must be evaluated as such.
- ALL teachers and TA's must complete 15 to 20 credits in Elements of Teaching.
- All lower division teachers shall have at least five years teaching experience.
- Develop a Baccalaureate teacher exchange program to allow them to teach at other state universities. They will learn how other universities in the state work and teach and learn their standards.

- Every teacher involved with Baccalaureate education shall teach two or more online classes in a year.

Involve Parents and Students:

- All freshmen students must complete 10-15 credits in Elements of Learning, self-study and Research.

- All parents/ Guardians shall receive the information every quarter. (Get the student releases along with many other releases universities get anyways with financial aid papers.)
    1. List of Courses their son or daughter is taking
    2. Quarterly transcript showing their Grades
    3. Information about the major and minor their student is working towards.
    4. Copy of all academic advising meetings

Quality of Education:

Quality is very essential for our future generation to stay ahead of the rest of the world. Our business, our government and our society depend on the competency of our workforce and its leaders.

As we re-engineer the system, the concept of total quality management must be built into the system. This is not quite feasible and all institution (universities and community colleges) with proper guidelines and appropriate funding can deliver quality education. It requires faith and cooperation from all players in the system.

New Baccalaureate Degree in Applied Sciences:
We all know that the technical professional career command much higher wages that a general degree graduate from our current education system. Our current education systems allows a s student to earn a general degree with numerous classes in a wide variety of subjects then why would a welder or an instrumentation technician or a biotech technician, who has completed a much rigorous curriculum, be held back to earn a baccalaureate degree. In fact, these skills command a much higher wage in the market place. This clearly means groups of general courses are valued as high level of education, than technical skills. May be that was the case 40-50 years ago.

However, the education requirements and skill levels have changed dramatically and current curriculum for these skills is as challenging and rigorous as any other education leading to baccalaureate degree. Secondly, these skills play a very significant role in our economic system and deserve equitable recognition. The future education system should recognize this fact and value the technical skills education like any other subjects.

I suggest to institute 4-year Applied Science Degrees at all community and technical colleges and at the current 4-year degree granting institutions. These students deserve same opportunity like any other students for a bright and successful future.

Financial Aid:
The current Federal Financial Aid system was designed 50 years ago and does not suit the needs of today. Yes, it is a Federal Issue, however, the State funding mechanism can be tweaked to help the needy students. The new financial aid system must have the flexibility to be tailored to meet individual needs not one single formula for all. Financial aid system must have well defined academic achievement goals from students every year.

Graduate Schools and Research Universities:

Our research Universities needs to concentrate on Masters programs, research, developing new technologies and innovative commercial applications of these new technologies. They are drivers of our future and masters of our destiny in this increasingly competitive world. Make substantial strategic investments in research with major universities. Do not allow the Baccalaureate student population to be the funding mechanism for this purpose.

Separate the budget, funding and administration of Baccalaureate responsibilities.

Online and Distance Education:
Brick and Mortar Universities with 8 AM to 3 PM Monday through Friday model is on its way out. It is not the right answer for future. Plan for major push to modernize and expand the online education and use of modern technology. To get the best return for the investments, I propose a Comcastic Model for future higher education. The features are:

- On demand
- When you want it
- How you want it
- Where you want
- At a fair price.

- An ITV set up with 36 computer labs would cost around $250,000 in a rented space. So 25 million dollars would open 100 such locations in our state.

- Rent a small portion of bandwidth from Dish Network or Comcast cable to offer 2 or 3 education channels, which are available at these ITV centers. This is not far fetched; it is very much economical feasible.

- We should learn from the education models of City U and University of Phoenix. They offer direct transfer of AAS without hassle, and serve students in rented space at the State funded colleges, or commercial buildings in downtown or suburbs, charge good money and are successful. What does that tell us? There is such a demand out there and it is growing. Business and industry accept the City U degrees as the same.

- A single statewide consortium should run the online classes and deploy the modern technology.

- All the online baccalaureate classes shall be accepted by all baccalaureate degree granting institution in the state. Each institution shall be part of developing and offering these classes. No duplications of classes or delivery systems or media.

- State education system can offer state of the art online education with built-in access to local colleges / universities for labs, face-to-face interaction with teachers and hands-on practice, when required.

- Washington On Line (WAOL) needs to be reformed. It is over 10 years old, which qualifies it as ancient. Modern technology should be deployed with streaming videos, iPhones and iPods. Deploy the current technology to arrange face-to-face meetings via Internet between students and teachers. This is the reality of today!

- Let me give you a simple example of modern technology. The iPhone is a computer and an iPod. Person can attend a lecture while waiting for doctor's appointment or during lunchtime at work. It can connect to a computer monitor and show the video clips of the labs or hands on exercises. Or

send questions to the teacher / mentor. It would be more economical and efficient to lend iPhone than books from the campus library. Small investment, big payoff!

- All online classes may be charged at lower than regular tuition rate without institutional fees for services not utilized by online students. Just watch how many people will want more education.

- Make business and industry integral part of developing curriculum and delivery of education. They are the customers of your product and it is only wise to produce what your customer wants and needs.

- Lifelong learning is a reality. Provide local access in each community for education needs of incumbent workers.

We as a nation are the crossroad of a great opportunity and great challenge. In this age of intense competition from other growing economies of the world, our edge is our knowledge. We need skilled technician and proficient graduates in large numbers to maintain our standard of living. These new bigger opportunity and bigger challenges requires bigger and bold decisions. It demands progressive, pioneering thinking and making innovative decisions to get where we need to go.

I would urge this board and WA State to take the pioneering steps to re-engineer the delivery and administration of higher education to revolutionize the pathway from k-12 to baccalaureate degree. Let other states look to our model as the one to emulate. This is matter of our survival and pride as the most innovative nation on the planet.

I would like to thank the HEC Board and the audience for allowing me this opportunity to offer my suggestions.

Thank you all.

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