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Faculty Perceptions Pertaining to Attributes of Successful Universities and Future Learning Environments

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Abstract

Significant changes are driving the wheels of progress. In the context of higher education, developments in technology and globalization have made a profound impact. There is need for universities to take stock of developments to plan with realistic goals so as not to be left behind in a highly competitive globalized environment. With rapid changes in requirements, universities face the challenge of being relevant. There is need to identify the attributes of successful universities and future learning environments for universities to prepare themselves towards achieving success. This study investigates the perception of respondents pertaining to attributes of successful universities and future learning environments. Data were collected using a specially designed survey during the 2016 academic year. The sample size was 89 international academics. The results highlights critical attributes, management elements and dominant pedagogical and technological trends. The paper also reports significant differences between gender and discipline sub-groups. The findings identify key themes, trends or perceptions that can be used as a foundation for more in-depth research to discern possible strategies towards achieving success.

Keywords: discipline difference, faculty perception, gender difference, higher education, learning environment, successful university

1. Introduction

Significant changes are driving the wheels of progress. In the context of higher education, developments in technology and globalization have made a profound impact. This has and will alter significantly the landscape of higher education. There is need for universities to take stock of developments to plan with realistic goals so as not to be left behind in a highly competitive globalized environment.

With the rapid changes in requirements, universities face the challenge of being relevant. There is need to identify the attributes of successful universities and future learning environments for universities to prepare themselves towards achieving success.

We are living in a time of exponential change. Education is shifting from the traditional classroom approach to technology-driven methods that tailor learning to an individual's needs. The ultimate challenge is to customize pedagogical approaches to fit the learning styles of individuals. Learning has to be continuous, supporting life-long education. Educators need to look beyond what they presently have, identify future ideas and put them into practice.

Universities should be changing from a place where knowledge outside the classroom is reported and transformed to students, to one where students themselves directly experience having a hand in creating knowledge (King & Sen, 2013). The modern university should serve its communities and provide highly skilled innovative manpower appropriate for current and future global needs.

The major contribution of the study lies in identifying factors, perceptions and perspectives of academics pertaining to successful universities and future learning environments that can be used as foundation for more in-depth research to discern possible strategies towards achieving success. Given the present scarcity of data, the data gathered provide a valuable source of information, as they offer a deeper insight into attributes and factors.

1.1 Sucessful Universities

Successful universities all share a strong organizational culture, a strong competitive approach both internally and externally, a willingness to take bold decisions and a collegial approach to decision making. Success depends on institutions finding ways of getting a lot of relatively small decisions right over a long period. This is a blueprint for a holistic management style and for understanding and attending all the different aspects of management that can create a momentum in which success reinforces success (Shattock, 2010).

Three factors distinguish top international universities from their competitors (Salmi, 2009). The first is presence of a high concentration of talented teachers, researchers and students. In most cases, world-class universities recruit students and faculty without concern for national borders. This enables them to focus on attracting the most talented people, no matter where they come from, and open themselves to new ideas and approaches.

The second factor that sets apart top universities are their sizable budgets. Elite institutions have several sources of funding: government money for operational spending and research, contract research from public organizations and private firms, and earnings from endowments, gifts and tuition fees.

The third factor of success is a combination of freedom, autonomy and leadership. World-class universities thrive in an environment that fosters competitiveness, unrestrained scientific inquiry, critical thinking, innovation and creativity. Institutions that have complete autonomy are also more agile, because they are not bounded by heavy bureaucracies and externally imposed standards. As a result, they can manage their resources efficiently and quickly respond to the demands of a rapidly changing global market.

A World Bank report (Russel Group, 2012) suggests that there are 3 inter-related critical success factors which distinguish a world class university:

- A high concentration of talent (both faculty and students);
- Sufficient resources to provide an extensive and comprehensive learning environment and a rich environment for advance research;
- Favorable governance to encourage autonomy, strategic vision, innovation, efficient resource management and flexibility.

1.2 Future Learning Environments

We need to use technology to customize the learning experience and move towards personalized learning to suit different individual needs. Basic characteristics of a good teaching and learning environment remain and include the following:

- supportive and productive;
- promotes independence and self-motivation;
- develops cognitive skill levels.

The learning and teaching landscape will continue to evolve rapidly. Approaches are being deployed to include innovative avenues to learning which make learning more engaging and interesting through active learning. Another area that will be helpful in improving the learning environment is learning analytics. Learning analytics make use of data analyzed to personalize the learning experience and measure performance.

The field of higher education is undergoing a revolution. New technologies and new approaches to learning are altering the way educational programs are delivered and are changing the way we learn (Knowledge@Wharton, 2014). Institutions around the world are creating very interesting blended models. The blended model seems effective with physical interaction. Successful implementation of flipped classroom approach has been achieved (Pearson, 2013a; Pearson, 2013b). The flipped classroom approach could be a major future trend. We may see that technology really does, at some point in the future, replicate the bonding and intense interactivity that face to face learning creates in the traditional world.

Personal Learning Environments (PLEs) are being put forward as a new approach to the development of e-learning tools that are no longer focused on integrated learning platforms such as Virtual Learning Environments (VLEs). In contrast, these PLEs are made-up of a collection of loosely coupled tools, including Web 2.0 technologies, used for working, learning, reflection and collaboration with others (Attwell, 2008).

2. Method

In this study both primary and secondary sources of data were used. The primary data for this research study were collected through interviews and a survey. Data were collected through an online questionnaire from randomly selected respondents representing a sample of academics from various disciplines at international universities.

The survey included a total of 89 academics from international universities who were randomly selected from various faculties/colleges. The target respondents represented a homogeneous mix to sufficiently preserve optimal diversity within the collected data required for subsequent analysis. Respondents were from the top 50 universities of three university rankings: Academic Ranking of World Universities 2015, QS World University Rankings 2015/2016 and Times Higher Education World University Rankings 2015-2016.

The questionnaire was pre-tested and revised by several senior university faculty members, who made modifications to enhance clarity. It was then pilot tested. The questionnaire was divided into three sections. In the first section, respondents were requested to respond to demographic questions about their academic position, gender and faculty discipline (arts/science). The second section provided explicit questions on attributes of successful universities covering the following aspects:

- Critical general attributes;
- Key domains/categories;
- Critical management elements.

The third section covered explicit questions on attributes of future learning environments covering the following aspects:

- Dominant pedagogical trends over the next 10 years;
- Dominant technological trends over the next 10 years;
- Critical factors in providing a good learning environment.

The raw data from the survey were then coded and entered into the statistical system. The data were explored both for their descriptive statistics (i.e., calculation of percentage distributions, frequency distributions, calculations of means and standard deviation) and inferential statistics (i.e., level of significance) (Sheskin, 2011). Results were analyzed and summarized, in order to draw conclusions and make recommendations.

3. Results and Discussion

A total of 89 international academics participated in the survey. The demographic breakdown by gender and faculty discipline is given in Table 1.

Table 1. Demographic breakdown

Gender				Faculty Discipline Type				Total
Male		Female		Arts		Science		
Count	%	Count	%	Count	%	Count	%	
64	71.9	25	28.1	25	28.1	64	71.9	89

Data regarding perceptions on the items in the survey were collected using a five-point Likert level of agreement scale. The mean analysis table is given in Table 2.

Table 2. Mean analysis table

Range	Mean Analysis
1 to 1.80	Strongly Disagree
1.81 to 2.60	Disagree
2.61 to 3.40	Unsure
3.41 to 4.20	Agree
4.21 to 5	Strongly Agree

In this study, to test for normality, the Shapiro-Wilk test is used. A p-value of less than 0.05 under the Shapiro-Wilk test indicates that a sample is not normally distributed. In such a case, the Mann-Whitney test is used for identifying significant differences between the responses of two independent groups (Sheskin, 2011). A p value of less than 0.05 indicates that there is a significant difference between the responses of the two groups.

3.1 Overall Response

This section gives the outcome of data analysis on attributes of successful universities and future learning environments. Table 3 highlights items in decreasing order of means for section on critical attributes for a university to be successful. Analysis of the means of responses indicates that item "Concentration of excellent faculty members and excellent students" is considered to be the most critical attribute for a university to be successful whereas item "Academically successful staff taking role in governance and management" is considered the least critical attribute for a university to be successful. The outcome of survey is in line with the World Bank report (Russel Group, 2012) which identifies the top three critical attributes in Table 3 as critical success factors.

Table 3. Critical attributes for a university to be successful

Item	Mean	SD
Concentration of excellent faculty members and excellent students	4.79	0.574
Appropriate governance (leadership, strategic vision, innovation and flexibility)	4.62	0.631
Abundant resources (funding, teaching labs, research labs, etc.)	4.29	0.568
Academically successful staff taking role in governance and management	4.18	0.747

Table 4 highlights items in decreasing order of means for the section on key domains/categories of successful universities. Analysis of the means of responses indicates that item "Leading-edge research and publication" is considered to be the most preferred category of successful universities whereas item "Graduate entrepreneurship" is considered the least preferred category.

Table 4. Key domains/categories of successful universities

Item	Mean	SD
Leading-edge research and publication	4.63	0.861
Graduate employability	4.40	0.538
Innovativeness (e.g., programs, graduates, research products, patents)	4.35	0.659
Contribution to communities	4.20	0.837
Return of investment	4.13	0.726
Graduate entrepreneurship	3.82	0.762

Table 5 highlights items in decreasing order of means for the section on critical management elements for successful universities. Analysis of the means indicates that item "Academic freedom" is considered to be the most critical management element for successful universities whereas item "Decisiveness" is considered the least critical management element.

Table 5. Critical management elements for successful universities

Item	Mean	SD
Academic freedom	4.62	0.574
Clear vision	4.53	0.659
Flexible and efficient management	4.52	0.566
Collaboration	4.52	0.566

Continuous improvement	4.48	0.624
Adaptability	4.47	0.623
Institutional autonomy	4.43	0.689
Innovativeness	4.42	0.654
Inspired leader	4.37	0.713
Effective fund management	4.35	0.676
Accountability	4.24	0.826
Decisiveness	4.10	0.754

Table 6 highlights items in decreasing order of means for the section on dominant pedagogical trends within the next 10 years. Analysis of the means indicates that item "Problem based learning" is considered to be the most dominant pedagogical trend in the next 10 years whereas item "Game-based learning" is considered the least dominant pedagogical trend.

Table 6. Dominant pedagogical trends within the next 10 years

Item	Mean	SD
Problem-based learning	4.14	0.815
Blended learning	4.06	0.817
Simulation-based learning	3.99	0.746
Online learning	3.91	0.900
Flipped learning	3.81	0.928
Social learning using social media	3.44	0.811
Game-based learning	3.42	0.823

Item "Flipped learning" is not within the top four dominant pedagogical trends even though an article (Flipped Learning Network, 2014) documents that almost three-quarters of over 180,000 middle and high school students who participated in the Speak Up 2013 surveys agree that flipped learning would be a good way for them to learn, with 32 percent of those students strongly agreeing.

A point to note is that item "Social learning using social media" is also not within the top four dominant pedagogical trends. An article (McLoughlin & Lee, 2008) supports the notion that social software tools offer opportunities to move away from the last century's highly centralized, industrial model of learning and toward individual learner empowerment through designs that focus on collaborative and networked interaction.

It is also interesting to note that item "Game-based learning" is not within the top four dominant trends. Market research firm Ambient Insight includes game-based learning among the eight types of pedagogically-defined learning products (Epper et al., 2012). The New Media Consortium's NMC Horizon Report: 2012 Higher Education Edition puts the time-to-adoption horizon for game-based learning at 2 to 3 years.

Table 7 highlights items in decreasing order of means for the section on dominant technological trends within the next 10 years. Analysis of the means indicates that item "Personalized learning environment" is considered to be the most dominant technological trend in the next 10 years whereas item "Electronic edu-gaming" is considered the least dominant technological trend.

Table 7. Dominant technological trends within the next 10 years

Item	Mean	SD
Personalised learning environment	4.09	0.793
Mobile and ubiquitous learning environment	3.99	0.805
Learning analytics	3.96	0.796
Electronic simulation	3.67	0.914
Augmented reality	3.29	0.772
Electronic edu-gaming	3.22	0.926

Table 8 highlights items in decreasing order of means for the section on critical factors in providing good learning environments. Analysis of the means indicates that item "Appropriate learning and teaching facilities" is considered to be the most critical factor in providing good learning environments whereas item "Universal design" is considered the least critical factor.

Table 8. Critical factors in providing good learning environments

Item	Mean	SD
Appropriate learning and teaching facilities	4.51	0.605
Trained teachers	4.39	0.769
Learning support	4.35	0.659
Technical support for teachers	4.33	0.653
Technology upgrades of learning environments	4.33	0.656
Flexible/Multiple delivery modes	4.31	0.717
Meeting needs of new generation—Approach and tools	4.15	0.716
Latest information and skill requirements	4.07	0.766
Learning space design	3.99	0.832
Universal design	3.53	0.841

It is interesting to note that providing flexibility in learning and addressing needs of the new generation and skills requirements are not within the top five critical factors in providing good learning environments. Perceptions of top critical factors in providing good learning environments revolve around rudimentary concerns pertaining to learning and teaching facilities (including technology upgrades) and training and technical support for teachers.

3.2 Gender Comparison

Studies (Croson & Gneezy, 2009; Bönte, 2015) indicate that there are gender differences in preferences and abilities. As such, it is of interest to investigate possible existence of gender differences pertaining to this study. Shapiro-Wilk test indicates that the samples are not normally distributed. Therefore, Mann-Whitney test is used to test whether significant differences exist between the responses of the male and female sub-groups.

Mann Whitney results indicate the following:

- There is a significant difference for item "Collaboration" in the section on critical management elements for successful universities;
- There is a significant difference for item "Simulation-based learning" in the section on dominant pedagogical trends within the next 10 years;
- There is a significant difference for item "Electronic edu-gaming" in the section on dominant technological trends within the next 10 years;

- There is a significant difference for the following items in the section on critical factors pertaining to providing good learning environments:
    - Learning space design;
    - Flexible/Multiple delivery modes;
    - Learning support;
    - Technical support for teachers;
    - Latest information and skill requirements;
    - Appropriate learning and teaching facilities;
    - Technology upgrades of learning environments.

3.3 Discipline Comparison

On differences between disciplines, studies (Hartley & Greggs, 1997; Furnham et al., 2011; Williamson, 2011) indicate that there are differences in preferences and abilities of arts and science students pertaining to matters such as learning and thinking styles. Likewise, academics from the two disciplines are assumed to have similar characteristics. As such, it is of interest to investigate possible existence of discipline differences pertaining to the study. Shapiro-Wilk test indicates that the samples are not normally distributed. Therefore, Mann-Whitney test is used to test whether significant differences exist between the responses of the arts and science sub-groups.

Mann Whitney results indicate the following:

- There is a significant difference for items “Inspired leader” and “Institutional autonomy” in the section on critical management elements for successful universities.

There is a significant difference for item “Appropriate learning and teaching facilities” pertaining to the section on critical factors in providing good learning environments.

4. Conclusion

The survey compiled perceptions from international academics pertaining to attributes of successful universities and future learning environments.

To begin with, the top three critical attributes for successful universities in decreasing order of means are:

- Concentration of excellent faculty members and excellent students;
- Appropriate governance (leadership, strategic vision, innovation and flexibility);
- Abundant resources (funding, teaching labs, research labs, etc.).

Subsequently, the top four categories of successful universities in decreasing order of means are:

- Leading-edge research and publication;
- Graduate employability;
- Innovativeness (e.g., programs, graduates, research products, patents);
- Contribution to communities.

Regarding management elements, the top six critical management elements for successful universities in decreasing order of means are:

- Academic freedom;
- Clear vision;
- Flexible and efficient management;
- Collaboration;
- Continuous improvement;
- Adaptability.

Pertaining to pedagogical trends, the top four dominant pedagogical trends within the next 10 years listed in decreasing order of means are:

- Problem-based learning;
- Blended learning;

- Simulation-based learning;
- Online learning.

Relating to technological trends, the top four dominant technological trends within the next 10 years in decreasing order of means are:

- Personalized learning environment;
- Mobile and ubiquitous learning environment;
- Learning analytics;
- Electronic simulation.

With reference to factors pertaining to provision of good learning environments, the top five critical factors in decreasing order of means are:

- Appropriate learning and teaching facilities;
- Trained teachers;
- Learning support;
- Technical support for teachers;
- Technology upgrades of learning environments.

Comparisons between gender and discipline sub-groups indicate that there exist some significant differences between the sub-groups.

These findings can be used as a foundation for more in-depth research to discern possible strategies towards achieving successful university status and in equipping universities with teaching and learning environments of the future.

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