

Research Questions and Analysis

Research Question 1

<p><u>Question</u></p> <p><i>What are the institutional profiles of nationally accredited institutions in categories I, II, III, and IV?</i></p> <p>Variables to be Measured: Profiles of OSS Enabled Institutions</p>
<p><u>Test:</u></p> <p>This question will determine the highest degree awarded, student population, course delivery available, and IT budget as it pertains to OSS enabled institutions.</p>
<p><u>The questionnaire items with their scale of measurement</u></p> <ol style="list-style-type: none">1. What is the highest degree awarded at your institution? -Measurement: Ordinal Scale2. What is the approximate student population at your institution? -Measurement: Ordinal Scale3. Do you offer online classes? -Measurement: nominal Scale4. What was your total budget for applications, hardware, and Licensures for one year? -Measurement: Ordinal Scale

Research Question 2

<p><u>Question</u></p> <p><i>What types of OSS hardware and software technology is implemented in Regionally accredited Institutions of category I, II, III, and IV?</i></p> <p>Variables to be Measured: Technology Used in OSS enabled Institutions</p>
<p><u>Test:</u></p> <p>This analysis approach will determine the level of correlation between the different technologies used within the different categories of OSS enabled institutions in the higher education community</p>
<p><u>The questionnaire items with their scale of measurement</u></p> <ol style="list-style-type: none">5. Select the type of servers that are implemented at your institutions -Measurement: Ordinal Scale6. Select the type of Open Source Software implemented at your institutions -Measurement: Ordinal Scale

Research Question 3

Question

What is the overall level of application performance in Regionally Accredited Institutions of category I, II, III, and IV?

Variables to be Measured: Application Performance at OSS enabled Institutions.

Test:

This question will determine the level of correlation of application performance among the four institutional categories.

The questionnaire items with their scale of measurement

7. What is the level of performance as it pertains to *Total Cost of Ownership*?
-**Measurement:** Interval Scale
8. What is the level of performance as it pertains to *Institutional Needs*?
- **Measurement:** Interval Scale
9. What is the level of performance as it pertains to *Security*?
-**Measurement:** Interval Scale
10. What is the level of performance as it pertains to *Maintenance*?
-**Measurement:** Interval Scale
11. What is the level of performance as it pertains to *Redundancy*?
-**Measurement:** Interval Scale
12. What is the level of performance as it pertains to *User productivity*?
-**Measurement:** Interval Scale

Research Question 4

Question

What are the budgeting requirements to implement and sustain the IT technological systems in Regionally Accredited Institutions of category I, II, III, and IV?

Variables to be Measured: Budget Requirement of OSS and Non-OSS Institutions

Test:

This analysis approach will determine the level of correlation in the budgeting practices among the four institutional categories.

The questionnaire items with their scale of measurement

13. What is the Institutions approximate annual Operational Budget for IT the last fiscal year, in millions of dollars?
-**Measurement:** Ordinal Scale
14. What amount was spent on your total IT maintenance the last fiscal year?
-**Measurement:** Ordinal Scale

Research Question 5

Question

What factors of OSS implementation are of greatest concern in Regionally Accredited Institutions of category I, II, III, and IV?

Variables to be Measured: Technological concerns of OSS enabled Institutions

Test:

This question will determine the level of correlation as it pertains to OSS concerns among each institutional category.

The questionnaire items with their scale of measurement

15. Rank your concerns about Open Source Software,
Where 1. Represents a least concern and **11.** Presents the highest concern.
-Measurement: Ordinal Scale

Research Question 6

Question

What is the knowledge level of OSS technology in nationally accredited Institutions of category I, II, III, and IV?

Variable to be Measured: Knowledge-base of OSS technology, in OSS Institutions

Test:

This analysis approach will determine the amount of correlation as it pertains to the knowledge level among each institutional category.

The questionnaire items with their scale of measurement

16. My Knowledge of OSS applications and technology is
-Measurement: Interval Scale
17. My knowledge of OSS Budgeting and financial requirements is
-Measurement: Interval Scale
18. My Knowledge of Infrastructure and Architecture required to support OSS is
-Measurement: Interval Scale
19. My Knowledge of Personnel required to support OSS is
-Measurement: Interval Scale

Research questions seven and eight, are not part of the institutional questionnaire. They are included in the study to ensure all aspects of data and results are reported properly. The results of this research will consist of, but not limited to the tabled data, validation procedures, and final reporting of the research results.

Research Question 7

Question (Non Survey Item):

What are the Key factors, data tables, validation process, and rules required to create an OSS-Model?

Variables to be Measured: The validity of the tabled-data stored in the OSS-model.

Test:

The researchers will test the model by comparing the tabled results of stored information in the model with the data that will be set aside in the analysis phase for testing and validation. A valid response will indicate that the test data applied manually against the model's tables has produced consistent and accurate results. The model validity must indicate a margin of error in the tabled data of no greater than .05; therefore, the testing process will reveal that the model has returned the right answers at a consistency rate of $\geq 95\%$.

Data that will be included in the "Documentation of the OSS-model Design":

1. Technical Description of Key Factors
2. Technical Description of Data tables
3. Technical Description of Queries
4. Technical Description of Use cases
5. Technical Description of Validation processes