



## ASSESSMENT OF GENDER DIFFERENCE ON STUDENTS' PERCEPTION OF UNDERGRADUATE RESEARCH PROJECT SUPERVISOR

Aminu Yusuf<sup>1i</sup>,

Anthony O. Ebubechukwu<sup>2</sup>

Iornienge Moses Tarnum<sup>3</sup>

<sup>1</sup>Department of Education Foundations,

Faculty of Technology Education,

Abubakar Tafawa Balewa University, Bauchi, Nigeria

<sup>2</sup>Department of Physical Science Education,

Imo State University, Owerri, Nigeria

<sup>3</sup>Department of Vocational and Technical Education,

Faculty of Education, Benue University, Makurdi, Nigeria

### Abstract:

Determining the extent of difference between male and female supervised students' perception on relationship; commitments of Undergraduate Research Project Supervisor (URPS) were among the objectives of the study. Survey design was adopted for the study. The study consisted of three universities, Abubakar Tafawa Balewa University of Technology, (ATBU) Bauchi, from North East, Benue State University (BSU) Makurdi, from North Central and Imo state University (ISU) Owerri from the South East geo political zones of Nigeria. Population of the study consisted of 1969 (375, from ATBU, 759 from BSU and 759 from ISU) final year students from Faculty of Education in each university. Proportionate Stratify random sampling was used to select 322 students. Supervised students project questionnaire (SSPQ) was developed, validated and used for data collection. Cronbach's Alpha of 0.88 was obtained as the stability coefficient of the items. Hypotheses were tested at  $\alpha=0.05$  level of significance. The data was analyzed using weighted mean while chi square test was used for the testing of the hypotheses. Some of the findings from the study shows that, there is significant ( $\chi^2 = 44.541$ ,  $df = 4$ ,  $p < 0.05$ ) difference between male (*Weighted mean* score = 28.85) and female (*Weighted mean* score = 30.4) supervised A students perception on the A

<sup>i</sup> Correspondence: email [yusufaminu59@yahoo.com](mailto:yusufaminu59@yahoo.com), [ebubechukwutony@yahoo.com](mailto:ebubechukwutony@yahoo.com), [iorniengetar@gmail.com](mailto:iorniengetar@gmail.com)

relationship with URPS; male have positive perception than female supervised students on level of UPRS commitments to student. Researchers to focus their study on undergraduate research project especially on opinion, perception

**Keywords:** gender difference, students' perception, undergraduate research project supervisor

## 1. Instruction

University students are required to carry out research project work at undergraduate level popularly known as Undergraduate Research Project (URP). Lambert, 2013 observed that a research project is an essential aspect of many undergraduate degree programs. Council of Undergraduate Research (CUR, 1997) defined URP as an inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline (area of specialization). It is a collaboration between a student and a faculty member in making a creative, original contribution to a given discipline. (Undergraduate research manual, n.d). Numerous benefits apart from the requirement for the award of degree certificate are derived from research project work by the undergraduate student. It provides experience of writing in the discipline and giving chance to be creative; it accords undergraduate students with experience that allows the students to better understand published works, learn to balance collaborative and individual work; it enhances student's involvement in knowledge of a given field and brings new ideas to all who are interested in the field (Alvarez and Dimmock, 2007; Madan and Teitge, 2013; Undergraduate Research Manual, n.d). URP also benefits students with skills for carrying out future research work especially at post graduate level.

To ensure that research carried out by student is free of research misconduct (plagiarism, falsification and fabrication) supervisor who is a lecturer in the field of the undergraduate student area of specialization is appointed by the department URP coordinator. Supervision refers to a series of collaborative interactions between the supervisor and the student in which the student is intellectually engaged in the scholarly research problem or program; it is one-to-one interaction between a supervisor and a student (Council of Undergraduate Research [CUR, 1997]; Yeoh and Doan, 2012). The URPS need to be patient, humble, committed or dedicated, show interest and be in a position to motivate the student. Literature documented that characteristics of ideal supervisors are knowledgeable and experienced; must provide timely and constructive feedback; and friendly, approachable and flexible (Yeoh and

Doan, 2012; Ali, Watson and Dhingrak, 2016; Azure, 2016). The contributions of the supervisor in the student mentor relationship, however, are equally crucial in promoting efficient and sustained undergraduate research (Showman, Cat, Cook, Holloway and Wittman, 2013). Lambert, 2013 observed that, supervising URP can present a special challenge such as the task of supporting apprentice researchers unused both to concepts and terminology of research. Manden and Teitge (2013) caution academic advisers (URSP) to be aware of their student's potential interest in research project work. To facilitate URPS work, Huang (2016) urged URPS to persuade (supervise) student's that research is good idea, keep many options open, share advice and discuss with the student's.

URP is never without problems. Garret (2013) observed that, URP is associated with problems that includes relying too much on Google, Wikipedia and information from non-scholarly websites, not making careful use of scholarly sources available in library( books, electronic databases) and failing to distinguish between effective sources and in appropriate ones.

Literature on URP focus on concepts, benefits and problems associated with URP (Garret, 2013; Juliat, 2015; Lessman, 2012; Madan and Teitge, 2013; Huang, 2016; and Yusuf, 2017). These are acknowledged. However, there is need for further research on URP to include study on the relationship between UPRS and supervised student. It is in line with this, that the study assessed gender difference on Students' Perception of URPS.

Specifically, the study determined the extent of difference between male and female supervised students' perception on

1. Relationship with URPS.
2. URPS Level of commitments to student.
3. URPS discharging his duty to the student expectation.
4. URPS motivation to student.
5. URPS.

## 2. Hypotheses

The following hypotheses where tested at  $\alpha= 0.05$  level of significance:

1. H<sub>0</sub>1: there is no significance difference between male and female supervised students' perception on relationship with URPS.
2. H<sub>0</sub>2: there is no significance difference between male and female supervised students' perception on URPS Level of commitment to student.

3. H<sub>03</sub>: there is no significance difference between male and female supervised students' perception on URPS discharging his duty to student expectation.
4. H<sub>04</sub>: there is no significance difference between male and female supervised students' perception on URPS motivation to student.
5. H<sub>05</sub>: there is no significance difference between male and female students' perception on URPS.

### 3. Methodology

Survey design was adopted for the study. The study consisted of three universities, Abubakar Tafawa Balewa University of Technology, (ATBU) Bauchi, from North East, Benue State University (BSU) Makurdi, from North Central and Imo state University (ISU) Owerri from the South East geo political zones of Nigeria. Of these universities only ATBU, Bauchi is the federal university. However, all the three universities are situated in each of the state's capital.

The population of the study consisted of 1969 (375, from ATBU, 759 from BSU and 759 from ISU) final year students from Faculty of Education in each university. The population is characterized by male and female students who have completed their research project work with aged range from 22-27 years. Proportionate stratify random sampling was used to select 322 students.

**Table 1:** Proportion of sample students from each university as used in the study

University		ATBU	BSU	ISU	Total
Gender	Male	41	63	67	171
	Female	20	74	57	151
Total		61	137	124	322

Supervised students project questionnaire (SSPQ) was developed, validated and used for data collection. The SSPQ instruments are made up two sections. Section A on bio data of the respondent while section B consisted of 10 items questions on five point Likert scale response ranging from Strongly Agree (SA) to Strongly Disagree (SD). The items are structured in such a way that half of the items (2, 4, 6, 7 and 9) are positive response items while the remaining half is negative response items. The scoring for the negative response items was reversed i.e., 1-5. The *maximum* score for all the items is 50 marks while the *minimum* score is 10 marks. Of the 10 items, items 1,3 and 9 were used to achieved the first objective of the study; item 6,7 and 10, the second objective; items 2, 4, and 8 the third objective and item 5 was used to achieved objective four of the

study. The overall response count for all the ten items was used to achieve objective five of the study.

The SSPQ items were validated by senior lecturer in Measurement and Evaluation from ISU, Owerri. To determine the reliability of the SSPQ items, pilot testing was conducted with 30 students who had completed their research project work from Faculty of Science ATBU, Bauchi. Cronbach Alpha of 0.88 was obtained as the stability coefficient of the items.

The instrument was administered and collected by each contributing author from each (ATBU, BSU and ISU) university. The study hoped to be significance to undergraduate project coordinators, URPS and researchers in similar field.

The data was analyzed using weighted mean while chi square test was used for the testing of the hypotheses using Statistics Product and Service Solutions (SPSS).

#### 4. Results

**Table 1a:** Perception of supervised students on relationship with URPS

Item	Response	SA	A	U	D	SD	Weighted mean
My relation with the supervisor was not cordial.	Score Male	64	168	9	28	65	<b>29.62</b>
	Female	49	425	18	288	40	
I cannot call my supervisor on phone on issue related to my research work.	Score Male	31	48	84	252	125	
	Female	47	116	12	140	35	
I have confidence when meeting my supervisor.	Score Male	130	68	32	148	46	
	Female	265	164	100	50	2	

Table 1a shows the perception between male (*Weighted mean* score of =28.85) and female (*Weighted mean* score of =30.4) supervised students on relationship with URPS. Overall *Weighted mean* score of 29.62 was obtained.

**Table 1b:** Summary of responses based on gender

Response	SA	A	U	D	SD
Male	121	125	39	144	84
Female	149	120	35	127	17

Table 1b, shows the summary of responses based on gender. Chi square computed from the result tabulated on Table1b revealed  $\chi^2 = 44.541$ ,  $df = 4$ ,  $p = .000$  at  $\alpha = 0.05$  level of significance.

**Table 2a:** Perception of supervised students on URPS Level of commitments to student

Item	Response	SA	A	U	D	SD	Weighted mean
My supervisor always keeps to his promise.	Score Male	225	248	111	42	6	<b>39.97</b>
	Female	275	252	69	16	2	
The time and attention given to me by my supervisor were quite adequate.	Score Male	300	276	33	50	6	
	Female	365	180	12	8	25	
My supervisor does not guide me on how to do the outlined corrections on my research work.	Score Male	22	32	54	244	270	
	Female	27	34	72	296	45	

Table 2a above revealed the perception of supervised students on level of commitments of URPS to student with over roll *weighted mean* score of 39.97 while male *Weighted mean* score = 42.64 and female *Weighted mean* score = 37.29 were obtained.

**Table 2b:** Summary of responses based on gender

Response	SA	A	U	D	SD
Male	127	147	66	107	66
Female	155	125	51	86	36

From the summary of responses tabulated on Table 2b above, Chi-square computed revealed  $\chi^2 = 44.541$ ,  $df = 4$ ,  $p = .000$  at  $\alpha = 0.05$  level of significance.

**Table 3a:** Perception of supervised students on URPS discharging his duty to the student expectation

Item	Response	SA	A	U	D	SD	Weighted mean
I was guided by the supervisor on selecting the research topic.	Score Male	255	316	44	12	24	<b>40.63</b>
	Female	70	508	16	4	4	
My supervisor assisted me on the choice of correct statistics tool for data analysis.	Score Male	220	304	15	87	7	
	Female	270	328	6	22	2	
My supervisor does not shows interest on my research findings	Score Male	8	36	48	260	320	
	Female	6	124	9	272	60	

Table 3a shows the perception of supervised students on URPS discharging his duty to the student expectation. Overall *weighted mean* score of 40.63 was obtained, while male *Weighted mean* score = 43.47 and female *Weighted mean* score = 40.88 were obtained.

**Table 3b:** Summary of responses based on gender

Response	SA	A	U	D	SD
Male	103	173	32	110	95
Female	74	271	9	81	18

Chi square computed from the result tabulated on Table 3b shows  $\psi^2 = 55.036$ ,  $df = 4$ ,  $\rho = .000$  at  $\alpha = 0.05$  level of significance.

**Table 4a:** Perception of supervised students on URPS motivation to student

Item	Response	SA	A	U	D	SD	Weighted mean
I am afraid to ask my supervisor questions related to my research work.	Score Male	56	39	264	250	50	<b>48.08</b>
	Female	32	138	224	40	8	

Result on Table 4a above, Perception of supervised students on URPS motivation to student. *Weighted mean* score of 41.53 and 30.6 were obtained for male and female students respectively. The over roll *Weighted mean* score of 48.08 was obtained.

**Table 4b:** Summary of responses based on gender

Response	SA	A	U	D	SD
Male	14	28	13	66	50
Female	25	16	46	56	8

Chi square computed from the result on Table 4b revealed  $\psi^2 = 55.036$ ,  $df = 4$ ,  $\rho < 0.05$  a level of significance.

**Table 5:** Difference between male and female supervised students perception on URPS

Responses	SA	A	U	D	SD	Total
Male	365	473	150	427	295	1710
Female	403	532	141	355	79	1510
Total	768	1005	291	782	374	3220

Table 5 above shows the difference in perception responses between male and female supervised students on URPS.

**Table 5b:** Chi-square test computed

	Value	df	Asymp.sig (2-tail)
Pearson – Chi square	1.251 <sup>a</sup>	4	.000
Likelihood Relation	132.652	4	.000
Linear by linear Association	81.866	1	.000
No of valid cases	3220		

0 cells (0%) have expected count less than 5. The minimum expected count is 136.46

## 5. Findings

1. There is significant ( $\psi^2 = 44.541$ ,  $df = 4$ ,  $\rho < 0.05$ ) difference between male (*Weighted mean score* = 28.85) and female (*Weighted mean score* = 30.4) supervised students perception on the relationship with URPS.
2. Male have positive perception than female supervised students on level of UPRS commitments to student.
3. There is significant ( $\psi^2 = 55.03$ ,  $df = 4$ ,  $\rho < 0.05$ ) difference in gender (male *Weighted mean score* = 43.47 and female *Weighted mean score* = 40.88) on supervised students perception on which URPS discharged his duty to student expectation.
4. That male (*Weighted mean* = 41.53) and female (*Weighted mean* = 30.6 supervised students differ on perception of motivation by URPS on supervised student.
5. Male and Female supervised students differ significantly ( $\psi^2 = 1.251$ ,  $df = 4$ ,  $\rho < 0.05$ ) on perception of URPS.

## 6. Discussion

In discussion the results from the study, limitation on influence of gender on the supervisory relationship must be acknowledged.

To achieve objective i of the study, results on Table 1a and Table 1b were used. From the result on Table 1a, over roll *Weighted mean score* = 29.62 obtained shows acceptance of male and female supervised students perception on relationship with URPS. This shows that both students accepted that the relationship was cordial. However, Chi square computed from the result on Table 1b, revealed that, there is statistically significant ( $\psi^2 = 44.541$ ,  $df = 4$ ,  $\rho < 0.05$ ) difference between male and female supervised students perception on the relationship with URPS. Thus, the  $H_0$  was rejected. Finding from this shows that male (*Weighted mean score* = 28.85) and female (*Weighted mean score* = 30.4) supervised students differ significantly on perception of

relationship between URPS and supervised students. Female have positive perception than male supervised students.

Result on Table 2a shows overall *weighted mean* Score = 39.97, this signifies supervised students' acceptance on the level of commitments of URPS to student expectation. However, result on Table 2b revealed *chi square* = 13.918, *df* = 4,  $\rho = .001$  at  $\alpha = 0.05$  level of significance. Thus, the  $H_02$  was rejected. Finding from this shows that there is statistically significant ( $\chi^2 = 13.918$ , *df* = 4  $\rho < 0.05$ ) difference between male (*Weighted mean* score = 42.64) and female (*female Weighted mean* score = 37.29) supervised students' perception on URPS level of commitments to student. Male have positive perception than female supervised students on level of URPS commitments to student.

Result obtained on testing  $H_03$  was tabulated on Table 3b. From the result (Table 3b) the  $H_03$  was rejected at *chi square* = 55.03, *df* = 4  $\rho = 0.001$  at  $\alpha = 0.05$  level of significance. Although result obtained on Table 3a revealed *weighted mean* score = 40.63 shows supervised students' acceptance on the perception on which URPS discharged his duty. However, finding from testing the  $H_03$  shows that there is significant ( $\chi^2 = 55.03$ , *df* = 4  $\rho < 0.05$ ) difference in gender (male *Weighted mean* score = 43.47 and female *Weighted mean* score = 40.88) on supervised students' perception on which URPS discharged his duty to student expectation. Male have positive perception than female supervised students.

Result on Table 4a shows male and female supervised students' perception on motivation of URPS to student. *Weighted mean* = 48.08 was obtained which shows supervised students' acceptance on the perception on motivation by URPS to student. However, *chi square* computed on testing  $H_04$  was tabulated on Table 4b. Table 4b result revealed significant ( $\chi^2 = 55.03$ , *df* = 4  $\rho < 0.05$ ) difference between male and female supervised students' perception on motivation by URPS to student. Thus, the  $H_04$  was rejected at  $\alpha = 0.05$  level of significance. Finding from this shows that male (*Weighted mean* = 41.53) and female (*Weighted mean* = 30.6) supervised students differ on perception of motivation by URPS on supervised student. Male have positive perception than female supervised students.

To achieve objective v, result tabulated on Table 5a was used to test the  $H_05$  and the result was shown on Table 5b. From the result (Table 5b), *Chi square* = 1.251, *df* = 4,  $\rho = .001$  at  $\alpha = 0.05$  level of significance was obtained. Thus, the  $H_05$  was rejected at  $\rho < 0.05$  level of significance. Finding from this revealed that male and female supervised students differ significantly ( $\chi^2 = 1.251$ , *df* = 4  $\rho < 0.05$ ) on perception of URPS.

## 7. Conclusion

The study assessed gender difference on the supervised students' perception of undergraduate research project supervision. Weighted mean scores on gender and overall weighted mean score on each of the outlined objectives of the study were obtained. Hypotheses were equally tested at  $\alpha = 0.05$  level of significance. Although most of the literature on previous study focused on post graduate supervisors, however, there is need for researchers to focus on undergraduate research project study as it is the bases for future research work.

## 8. Recommendations

Researchers to focus their study on undergraduate research project especially on opinion, perception and attitude of supervised students to supervisors. Similar studies to be carry out to verify the findings from this study.

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