

## PERFORMANCE EVALUATION STRATEGIES AND TEACHERS' PRODUCTIVITY IN PUBLIC SECONDARY SCHOOLS IN RIVERS STATE.

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**ABSTRACT:** *This study investigated the performance evaluation* strategies and teachers' productivity in public senior secondary schools in Rivers State. Four research questions and hypotheses guided the study. The correlational design was adopted by the study. The population of the study is 1,714 respondents in 95 public senior secondary schools in Rivers West Senatorial district in Rivers State. The sample size of the study comprises 514 respondents in Rivers West Senatorial District in Rivers State. A simple random sampling approach and proportional sampling technique is used. Two sets are used for data collection. They are Performance Evaluation Strategies Questionnaire (PESQ) and Teacher's Productivity Questionnaire (TPQ) for data collection. The reliability of the instruments (PESQ and TPQ) were determined by using Cronbach Alpha method. The research questions were answered using Pearson Product Moment Correlation Coefficient (PPMC) to answer the research questions while the hypotheses were tested using Multiple Regression. The findings of the study showed that the Performance Evaluation Strategies, such as complying to quality assurance, adherence to output specification, knowledge of the job, creative initiative had positive relationship with teachers productivity in public senior secondary schools in Rivers State. It was also found that there was significant difference between complying to quality assurance, adherence to output specification, and knowledge of the job, as creative initiative had a positive relationship with teachers productivity in public senior secondary schools in Rivers State. It was recommended among others that the government should provide a legal framework that coordinates and harmonizes the best performance evaluation strategy to ensure standards and uniformity.



#### **BACKGROUND TO THE STUDY**

Performance evaluation is the process of appraising the effectiveness of teachers on achieving their job responsibility which contributes to the accomplishment of educational goals. Performance evaluation is the process of determining and communicating to a teacher how they are performing on the job. Performance evaluation is a process of assessing work behavior by measuring and comparing to previously established standards, recording the results and communicating them back to the employees. In the educational setting, performance evaluation is a structural formal interaction between the principles, education boards and the teacher that usually takes place periodically, aimed to examine and identify weakness and strength as well as opportunities for improvement and skills development. (Oduwaiye & Oyedepo, 2011).

The practice of this system began in the world mainly in the 1950s in the United States and through this system; merit rating was used for the first time around the Second World War as a method of justifying an employee's wages (Dulewicz, 1989). The process was based on material outcomes where higher output was rewarded with higher pay. Since then, the performance evaluating system has spread to many parts of the world.

Over the years, studies have shown that pay rates were not the only element that had an impact on employee performance. It was found that other issues such as morale and self-esteem could also have a major influence. That has resulted in progressive rejection of emphasis of performance appraisal on reward outcome, even in the United States, and other potentials as a tool for motivation and development was recognized. Common replacements for appraisal were assessment and evaluation.

Teachers' evaluation is a function of human decision making resulting from a value judgment about how good or weak a particular work performance is using information that compares the actual work performance with predetermined performance standards. Teachers' evaluation is normative in nature because a valued judgment is given. This valued judgment must be weighed against definite criteria of fairness and should always fulfill a certain function. Teacher evaluation fulfills main functions, namely: a formative function for the development of professional teaching skills and a summative function for selection and as a basis for grading promotion.

In the school setting; performance evaluation states its foundation and data from the curriculum, scheme of work, lesson plans, lesson notes, and events that take place inside the classroom. It is through performance that the evaluator gets a clear structure of activities and responsibilities of each member of staff in the school. Performance evaluation enables the evaluator or the principal to evaluate the extent to which policies, objectives, activities, methods, materials, equipment and events laid down in the long and short-term plans, are successfully carried out.

Performance evaluation therefore, is a basic requirement in school administration that brings on board procedures of efficiency, effectiveness, and proper personnel management, with an aim of stirring their efforts, towards the desired educational goals. Performance evaluation identifies the gap between the expected performance stage and the actual performance stage. Teacher's evaluation is connected, interconnected or intertwined with school intention to improve teaching and learning process. Teacher's evaluation is essential for identifying the needs in the teaching process and also help in defining the school plan in the bid of improving



the teaching and learning processes in the school. This is submersed in the school quality assurance system. Performance evaluation is an important element in the educational system and educational policy which requires effective strategies that will allow it to develop and direct human and concrete potentials.

These strategies should be used, and it will contribute to problem solving. Furthermore, performance evaluation strategies bear the burden of leading and supervising in service knowledge, employing them to serve the teaching and learning process. School principals and education boards use various performance evaluation strategies to accomplish these goals. As an aspect of administration, it assists in checking punctuality, discipline as well as facilitating change from old ways to modern ways of doing things at the school. Performance evaluation strategies are various ways, procedures, systems used to instruct, spur-up, and evaluate teachers for greater productivity. It is the abduction of these various techniques to review the quality of the performance of members of staff, and the level of their efficiency and productivity. The encouragement function of supervision enhances teachers to play important roles aimed at excellence in examination, which also reduces danger of teachers being frustrated. Performance evaluation strategies aids principals in managing, directing, improving and maintaining high teaching and learning standards in the school setting.

The performance evaluation strategies help to make bold or to enhance the goals and objectives of the senior secondary educational level, because they are used in measuring the teachers' performance. These strategies include: complying to quality assurance, adhering to output specification, job knowledge, creative initiative, and these will be discussed in this study. Complying with quality assurance is a strategic procedure which seeks to bring out the required standard in the educational setting. This is most essential because it seeks to measure and compare the present work behavior to the previously established standards of work behavior and ensures that a school develops and performs in line with the curriculum and standard in place.

Quality assurance is used to carry out quality evaluation, and it is a method which helps make the established standards to stand out. Complying with quality assurance is all important because it ensures school development in their teaching and learning processes. Adherence to output specification is the compliance to the stipulated standard of the senior secondary educational level. It is the livewire of both the set standard and the delivery standard. In essence, it is knowing the established standard, and following those established standards for higher educational productivity.

Job knowledge is the know-how in the teaching profession, ranging from being knowledgeable in the subject area and having the techniques to impart this knowledge to the students. When a teacher knows his job, they make the teaching and learning process very easy for students to achieve what the process aimed at, which is teachers' productivity. Creative initiative is having the required capacity to think of something new, like ideas, plans, actions. It is that imaginative connection, explorations of things around you for greater achievement, especially in the educational setting, most especially in the public senior secondary school.

Teachers' productivity is the students' academic achievement at the end of the teaching and learning processes. It is the quality and quantity of students produced by the end of the secondary levels of education. By the end of a stipulated period, students' should have the necessary knowledge, skills to develop them mentally, emotionally, socially, economically, for



full participation in the development of the society (Maranya, 2001). Teachers' compliance to quality assurance, adherence to output specification, job knowledge, adaptability and reliability, will raise the quality of the students' academic performance to high and reputable standard, and this is teachers' productivity (Mbiti, 1974).

#### **Statement of the Problem**

It has been observed with dismay that learning gains have not been seen on the students of the public senior secondary schools in Rivers State. There is no improvement in their knowledge and in their skills. No personal development, like creativity and innovative powers seen in their lives as they graduate from the secondary level of education. Even in their academics, they do not have academic excellence to the point of having higher grades in WASSCE, except they are being helped. For the educational goals to be achieved in this level of education, performance evaluation should be carried out for teachers' productivity to be enhanced. Hence this study seeks to investigate performance evaluation strategies and teachers' productivity in public senior secondary schools in Rivers State.

## **Aims and Objectives**

The aim of this study is to investigate the relationship between performance evaluation strategies and teachers' productivity in public senior secondary schools in Rivers State. Specifically, the study sought to:

- 1. determine the relationship between complying to quality assurance and teachers' productivity in public senior secondary schools in Rivers State;
- 2. examine the relationship between adherence to output specification and teachers' productivity in public senior secondary schools in Rivers State;
- 3. ascertain the relationship between job knowledge and teachers' productivity in public senior secondary schools in Rivers State; and to
- 4. examine the relationship between creative initiative and teachers' productivity in public senior secondary schools in Rivers State.

### **Research Questions**

The following research questions guided this study:

- 1. What is the relationship between complying to quality assurance and teachers' productivity in public senior secondary schools in Rivers State?
- 2. What is the relationship between adherence to output specification and teachers' productivity in public senior secondary schools in Rivers State?
- 3. What is the relationship between job knowledge and teachers' productivity in public senior secondary schools in Rivers State?
- 4. What is the relationship between creative initiative and teachers' productivity in public senior secondary schools in Rivers State?



## **Hypotheses**

The following hypotheses guided the study:

- 1. There is no significant relationship between complying to quality assurance and teachers productivity in public senior secondary schools in Rivers State.
- 2. There is no significant relationship between adherence to output specification and teachers' productivity in public senior secondary schools in Rivers State.
- 3. There is no significant relationship between job knowledge and teachers' productivity in public senior secondary schools in Rivers State.
- 4. There is no significant relationship between creative initiative and teachers' productivity in public senior secondary schools in Rivers State.

#### THEORETICAL FRAMEWORK

This study was anchored on goal setting theory by Edwin Locke in the year 1960. Edwin Locke postulated the goal setting theory of motivation which stated that goal-setting is essentially linked to task performance. It states that specific and challenging goals along with appropriate feedback contribute to higher and better productivity, that is, goals indicate and give direction to an employee about what needs to be done and how much effort is required to put in. The important features of goal-setting theory are as follows: The willingness to work towards attainment of goal is the main source of job performance; clear, particular and difficult goals are greater motivating factors than easy general and vague goals. Specific and clear goals lead to greater output and better performance. Unambiguous, measurable and clear goals accompanied by a deadline for completion avoids misunderstanding. Goals should be realistic and challenging. This gives an individual a feeling of pride and triumph when he attains them, sets him up for attainment of the next goal. The more challenging the goal, the greater the reward generally and the more the passion for achieving it. Better and appropriate feedback of the results directs the employee behavior and contributes to higher performance than absence of feedback. Feedback is a means of gaining reputation, making clarifications and regulating goal difficulties. It helps employees to work with more involvement and leads to greater job satisfaction. Employee's participation in a goal is not always desirable. Participation of setting goals however makes goals more acceptable and leads to more involvement.

The present study is anchored on goal setting theory because performance evaluation basically means measuring the extent of achievement of the set goals. But if the set goals are not well designed to be clear and measurable then productivity will not be realized. Therefore goal setting theory is the most appropriate in this study because it gives direction on how to, prepare and, implement performance evaluation.



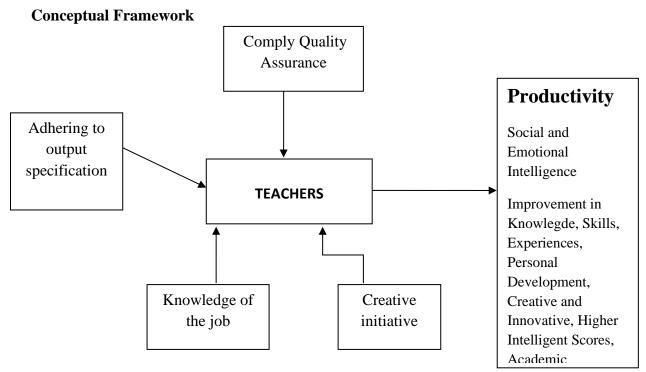


Figure 2.1: The performance evaluation strategies and teachers' productivity.

Source: Myke-Sotohn (2022:34)

Figure 2.1 shows the kinship and interconnectedness of some selected performance evaluation strategies on teachers' productivity. The arrows portray the fact that there exists a relationship between the performance evaluation strategies and teachers that affect their productivity.

#### **Performance Evaluation**

The term performance evaluation refers to the methods and processes used by organizations to assess the level of performance of their employees. Performance evaluation is the process of appraising the effectiveness and efficiency of teachers on achieving their job responsibilities and contributing to the accomplishment of educational goals. In an organizational setting, performance evaluation is defined as a structured formal collaboration between a subordinate and supervisor that usually takes the form of a periodic interview in which the performance of the subordinate is examined and discussed with a view of identifying weaknesses and strengths as well as opportunities for improvement and skills development (Oduwaiye & Oyedepo, 2011). Moorhead and Griffin (1992) described performance evaluation as a process of assessing work behaviors by measurement and comparison to previously established standards, recording the results, and communicating them back to the employee. It is an action between a manager and employee or superior and subordinate. Performance evaluating is the process of determining and communicating to an employee how he or she is performing on the job, and how they should improve on it. The system began in the world mainly in the 1950s and through this system; merit rating was used for the first time around the Second World War as a method of justifying an employee's wages. The process was based on material outcomes where higher output was rewarded with higher pay. Since then the performance evaluating system has spread to many parts of the world.



Dittimiya (1998) opined that performance evaluation helps to detect areas of improvement for teachers' effectiveness. It also helps the manager/principal in checking for deviation from standard and determining if those deviations exceed control tolerances. Thus, an effective employee performance evaluation is a means of control, whereby individuals learn their strengths and weaknesses and are told what they should do to overcome deficiencies (Kaczmarczyk & Murtough, 2002).

Performance evaluation is an integral part of Human Resource activity that is of critical importance to any establishment (Lebas, 1995). Fisher (2003) described performance evaluation as that part of the performance management process in which an employee's contribution to the organization during a specific period is assessed. According to Otley (1999), a general performance evaluation considers some areas: what are the key objectives that are central to the organization's overall future success, and how does it go about evaluating its achievement for each of these objectives? What are the strategies and plans that the organization adopted and what are the processes and activities that it has decided will be required for it to successfully implement these? How does it access and measure the performance of these activities, what level of performance does the organization need to achieve in each of these areas defined in the above two questions, and how does it go about setting appropriate performance targets for them? What rewards will managers and other employees gain by achieving these performance targets or what penalties will they suffer by failing to achieve them? What are the information flaws that are feedback and feed forward loops that are necessary to enable the organization to learn from its experience and to adopt its current behavior in the light of that experience?

Fletcher (2001) stated that performance evaluation is a management process for ensuring employees are focusing on their work and putting their best in order to achieve the organizational mission. It consists of three phases: setting expectations for employee performance, maintaining a dialogue between supervisor and employee to keep performance on track, and measuring actual performance relative to performance expectations. Armstrong (2004) said performance evaluation as a means of getting better results from the whole organization by understanding and managing within an agreed framework, performance of planned goals, standards and competence requirements. Kandula (2006) stated that performance evaluation is a designing and executing motivational strategies, interventions and drivers with an objective to transform the raw potential of human resource into performance.

## **Performance Evaluation Strategies**

Performance evaluation strategy is a tool used in educational system to make teachers reliable and trustworthy (Arifin, 2015). This is consistently following the standards, policies, ethics of the teaching and learning profession for students' academic achievement, which is teachers' productivity. When reliability is in place, teachers' productivity is ensured.

#### **Complying to Quality Assurance**

Quality assurance is used to carry out quality evaluation, and is a method to help make sure certain quality standards are fulfilled. Quality assurance can be particularly important to ensure that a school develops and performs in line with the curriculum and standards in place. Several authorities state that the purpose of quality assurance is to ensure that higher education reaches



stated standards. For others, quality assurance is about ensuring the quality of teaching and others focus more on the processes to achieve quality: quality assurance is in fact a metaprocess. When this performance evaluation strategy is used continuously, there will be improvement in the teacher's performance. Basically, it serves dual purposes: administrative and developmental, but this study focuses on the developmental aspect of it. Performance evaluation strategies are the systematic processes of determining teacher's performance level, and when properly carried out, it reveals the difference between the expected performance and actual performance levels (Kyriakides, 2013). Managing teachers is an integral part of the tasks that all school administrators perform throughout the year, which ultimately enhances the academic development of the learner.

## **Adherence to Output Specification**

Adherence to output specification is the compliance to the stipulated standard of the senior secondary educational levels. It is the foundational blocks of both the set or established standard and delivery standard. Therefore, it is the knowledge of the established standard and following those standards for academic excellence. This exists to facilitate the improvement of instruction. The evaluation procedures and associated instruments provide the framework for assessing teacher performance as it relates to the adopted performance criteria professional growth plan will be developed to support and enhance professional development.

The principal is responsible for evaluation at the school site. The principal may, however, delegate the responsibility to an assistant principal, when applicable. The teacher or administrator may, at any time, request the support and assistance of other management personnel as part of the evaluation of instructional supervision process. This may include the principal, assistant principal(s), subject area supervisors and/or administrators from the central office. In addition, the teacher may, at any time, request informal non-evaluative assistance from other qualified teachers, department chairpersons or other non-administrative personnel (Arar, 2016). These personnel would not be part of the formal evaluation process, but the evaluator may, at any time, recommend such assistance and/or suggest specific personnel. Performance evaluation for teachers is a continuous process that takes place in three-year cycles. It consists of two complementary types of evaluation: formative and summative.

The former is the process of gathering performance data, analyzing it, and using the results to provide feedback for the purpose of improving teaching. The latter is the process of using performance data to judge the quality of teaching in the light of the county's established criteria for teacher performance.

## Job Knowledge

Uche (2015) defined teacher's job knowledge as a body of professional knowledge that encompasses both knowledge and general pedagogical principles and skills and knowledge of the subject matter to be taught. A study of Aseka (2013) recommends that the Ministry of Education ought to emphasize on frequent monitoring of professional documents by the head teachers. Schemes of work, lesson plans, lesson notes, records of work and class attendance registers should be checked regularly, conducting classroom visits, observation and checking of teachers' professional records have to be done seriously in order to improve teacher's job knowledge. According to Maria (2017), teacher's performance evaluation enables teachers to be acquainted with their job roles and contributes significantly to school goals and objectives.



In addition to content knowledge, subject matter knowledge encompasses an understanding of the various ways a discipline can be organized or understood, as well as the knowledge of the ways by which a discipline evaluates and accepts new knowledge. Emphasis on one or more of the kinds of teacher knowledge suggested by Shulman (2016) content knowledge, general pedagogical knowledge, curriculum knowledge, pedagogical content knowledge, knowledge of learners and their characteristics, knowledge of educational contexts, knowledge of educational ends, purposes, and values and their philosophical and historical grounds.

#### **Creative Initiative**

The teachers' evaluation involves an accurate appraisal of the effectiveness of teaching, its strengths and areas for development, followed by feedback, coaching, support and opportunities for professional development. Having the required capacity to think of something new, like new ideas, plans, actions. It is the power to think out of the status quo, and be explorative for greater achievements in the educational setting. Maya (2018) contended that the great majority of teachers report that the appraisal and feedback they receive is beneficial, fair and helpful for their development and enable teachers to generate creative initiative. John (2010) asserted that creative initiative can only be possible if teacher's performance evaluation is in place and functional. When teachers are aware of their performance it will spur them to be creative and be productive in the organization where they find themselves.

#### **Teachers Productivity**

Productivity is the learning gains that the students achieved by the end of the teaching learning processes. It is the attainment of the educational goals of the senior secondary level of education, by the students, after they must have gone through the tutorship of a teacher or teachers. These learning gains include: improvement in knowledge and skills, being creative and innovative, academic growth, academic excellence and achievement, having higher intelligence grades, having cognitive and personal growth and to be self-reliant, among others.

Teachers are the backbone of an educational activity. The success and failure of educational activities highly depends on their productivity. Teachers are role models for their respective students and, therefore, teachers' productivity is crucial for students' success. Their productivity is directly linked to the process and product of education. Therefore, the productivity of teachers is emphatic for the improvement of education. According to Al-Sherbeeny (2014), productivity may be described as an act of accomplishing or executing a given task, successfully and imparting the desired knowledge and skills to the students, by the end of the teaching learning experience. It could also be described as the ability to combine skillfully the right behavior towards the achievement of organizational goals and objectives. Teachers' productivity can be defined as the actions they perform in schools in order to achieve educational goals.

Madi (2012) stated that teachers productivity can be described as "the duties performed by a teacher at a particular period in the school system in achieving organizational goals". Alazidiyeen (2010) said that it could be described as the ability of teachers to combine relevant inputs for the enhancement of teaching and learning processes. Productivity is determined by the worker's level of participation in the day to day running of an organization. There are some factors which contribute to a teacher's productivity. Some of the factors include supervisory techniques of principals, satisfying the learners through his teaching style and quality, apart



from teaching, productivity of other assignments as assigned by the Principal and the department, management of class discipline, students' motivation and improvement of their achievement, productivity of his duties in a regular way, and interaction with students, parents, colleagues and high officials. Shymansky (2016) held that the assessment of teachers' productivity is as important as the assessment of students. According to Shymansky (2016), teachers' productivity is assessed for monitoring and evaluation purposes.

#### **METHODOLOGY**

This deals with the various strategies which were used to carry out this study. It is arranged into the following sub-headings.

## **Design of the Study**

This study adopted a correlational research design. This usually indicates the direction of the relationship, whether negative or positive. Kpolovie (2010) and Nwankwo (2013) stated that whenever a researcher is interested in finding out whether there is a relationship between two or more variables, and data from such variables are in ratio or interval scale (score) to create the possibility for the scores to be correlated, such should be correlational design. This design is the most suitable because it allows this study to examine the relationship that exists between the variables and it also shows the extent of the relationship that exists between the variables.

### **Population of the Study**

The population of the study is 1,714 teachers in 95 public senior secondary schools in Rivers West Senatorial District in Rivers State. There are three senatorial districts in Rivers State. For the reason of this study, one senatorial zone or district is used, which is the Rivers West, which has eight Local Government Areas in Rivers West Senatorial Districts. Abua/Odua has 1,199 teachers; Ahoada East, 235 teachers; Ahoada West, 197 teachers; Akuku-Toru, 133 teachers; Asari-Toru, 229 teachers; Bonny, 96 teachers; Degema, 223 teachers and Ogba/Egbema/Ndoni 402 teachers totaling 1,714 teachers (Rivers State Senior Secondary Schools Board: Planning, Research and Statistics Department, 2021).

## Sample and Sampling Technique

The sample size of the study is 514 teachers in Rivers West Senatorial District in Rivers State. A simple random sampling approach and proportional sampling technique is used. Simple random sampling is used to select the schools and teachers in each local government area; 30% of (1,714) the entire population is 514.

## **Research Instruments**

The instruments for data collection in this study were developed by the researcher, titled "Performance Evaluation Strategies Questionnaire (PESQ) and Teachers' Productivity Questionnaire, (TPQ). The PESQ and TPQ are 20-item instrument each and will be scored on a 4-point rating scale of Very High Extent (VHE): 4 points, High Extent (HE): 3 points, Little Extent (LE): 2 points and Very Little Extent (VLE): 1 point. The questionnaire is appendix I divided into segments A and B. Segment A was for demographic information of the

respondents, while segment B contains 20 items to answer the research questions of PESQ and TPQ of 10 items respectively.

#### Validation of the Instrument

Copies of the instrument were sent to my supervisor, and two experts in Measurement and Evaluation for face and content validity. All their recommendations, suggestions and corrections were strictly incorporated in the final version of the instrument.

## **Reliability of the Instrument**

The reliability of the instruments (PESQ and TPQ) were determined by administering the instrument to 20 principals and 10 teachers from ten public senior secondary schools in Rivers State. The scores from the instrument were analyzed and the reliability was determined. The reliability of the instruments is determined using Cronbach Alpha method.

#### Administration of the Instrument

The instrument is administered by two researchers and 2 trained research assistants. Administration of the PESQ and TPQ is in sections for a period of two weeks. The research assistants were taught the purpose of the study before sending them to the field. Copies of the instrument that are filled were collected immediately to avoid instrument mortality.

#### **Methods of Data Analysis**

The data from respondents is analyzed using mean and standard deviation and Pearson's Product Moment Correlation Coefficient (r). Mean and standard deviation is used to answer the research questions while Pearson Product Moment Correlation Coefficient (r) is used to test hypotheses. Therefore, responses with 1.0 indicate a perfect positive correlation, -1.0 indicates a perfect negative correlation, greater than zero it's a positive relationship, and less than zero is a negative relationship. SPSS is used in all the calculations.

## **RESULTS**

The results of the research questions and hypotheses that guided the study are presented below.

**Research Question 1:** What is the relationship between complying to quality assurance and teachers productivity in public senior secondary schools in Rivers State?

Table 1: Correlation Coefficient between Complying to Quality Assurance and Teachers Productivity in Public Senior Secondary Schools in Rivers State

Variables					r <sup>2</sup>	Percentage
complying assurance	to	quality	Pearson Correlation Sig. (2-tailed)	.430** .000	0.2325	23.25%



Table 1 showed the correlation coefficient between complying to quality assurance and teachers productivity in public senior secondary schools in Rivers State. The correlation coefficient between complying to quality assurance and teachers productivity in public senior secondary schools in Rivers State was positively substantial (.430). Teachers who complied to quality assurance enhanced their productivity in public senior secondary schools in Rivers State. compliance to quality assurance accounted for 23.25% of the variance in teachers' productivity in public senior secondary schools in Rivers State.

**Research Question 2:** What is the relationship between adherence to our specification and teachers' productivity in public senior secondary schools in Rivers State?

**Table 2:** Correlation coefficient between adherence to our specification and teachers' productivity in public senior secondary schools in Rivers State.

Variables					r <sup>2</sup>	Percentag e
Adherence specification	to	out	Pearson Correlation Sig. (2-tailed)	.538** .000	0.2283	22.83%

Table 2 showed the correlation coefficient between adherence to our specification and teachers' productivity in public senior secondary schools in Rivers State. The correlation coefficient between complying to adherence to our specification and teachers' productivity in public senior secondary schools in Rivers State was positively substantial (.538). Teachers who adhered to our specification enhanced their productivity in public senior secondary schools in Rivers State. adherence to our specification accounted for 22.83% of the variance in teachers' productivity in public senior secondary schools in Rivers State.

**Research Question 3:** What is the relationship between knowledge of the job and teachers' productivity in public senior secondary schools in Rivers State?

Table 3: Correlation Coefficient between Knowledge of the Job and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

Variables			r <sup>2</sup>	Percentag e
Knowledge of the job	Pearson Correlation Sig. (2-tailed)	.609** .000	0.2749	27.49%

Table 3 showed the correlation coefficient of knowledge of the job and teachers' productivity in public senior secondary schools in Rivers State. The correlation coefficient between knowledge of the job and teachers' productivity in public senior secondary schools in Rivers State was positively substantial (.609). Teachers who had knowledge of the job enhanced their productivity in public senior secondary schools in Rivers State. Knowledge of the job accounted for 27.49% of the variance in teachers' productivity in public senior secondary schools in Rivers State.



**Research Question 4:** What is the relationship between creative initiative and teachers' productivity in public senior secondary schools in Rivers State relate to teachers' productivity in public senior secondary schools in Rivers State?

Table 4: Correlation Coefficient between Creative Initiative and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

Variables			r <sup>2</sup>	Percentag e
Creative initiative	Pearson Correlation Sig. (2-tailed)	.473** .000	0.4767	47.47

Table 4 showed the correlation coefficient of creative initiative and teachers' productivity in public senior secondary schools in Rivers State. The correlation coefficient between creative initiative and teachers' productivity in public senior secondary schools in Rivers State was positively substantial (.473). Teachers who had creative initiative enhanced their productivity in public senior secondary schools in Rivers State. Creative initiative accounted for 47.47% of the variance in teachers' productivity in public senior secondary schools in Rivers State.

**Hypothesis 1:** There is no significant relationship between complying to quality assurance and teachers' productivity in public senior secondary schools in Rivers State.

Table 5: Analysis of Variance of Regression on Complying to Quality Assurance and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

Mode 1		Sum of Squares	df	Mean Square	F	Sig.
	Regressio n	3750.290	1	3750.290	91.783	.000 <sup>b</sup>
	Residual Total	14791.498 18541.788	362 363	40.860		

a. Dependent variable: teachers productivity

b. Predictor: (Constant), complying to quality assurance

Table 5 showed that the F-value of 91.783 is significant at 0.000. This indicated that complying to quality assurance was significantly related to teachers' and teachers' productivity in public senior secondary schools in Rivers State. Therefore, the null hypothesis of no significant linear relationship between complying to quality assurance and teachers' productivity in public senior secondary schools in Rivers State was rejected.

**Table 6: Model Summary Complying to Quality Assurance and Teachers' Productivity in Public Senior Secondary Schools in Rivers State** 

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.450a	. 2325	.200	6.39222

The coefficient of determination (R<sup>2</sup>) is 0. 2325. This indicates that 23.25% of the variance in teachers' productivity in public senior secondary schools in Rivers State is caused by variations in the predictor variable. Therefore, 23.25% of the variance in teachers' productivity in public senior secondary schools in Rivers State is predicted by compliance to quality assurance.

Table 7: T-Values Complying to Quality Assurance and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

Model	Unstan Coeffic	dardized cients	Standardized Coefficients	t	Sig.
	В	Std.	Beta	-	
		Error			
(Constant)	14.55	1.286		11.318	.000**
	1				
compliance to quality	1.188	.124	.450	9.580	.000**
assurance					

<sup>(\*\*</sup> Sig. at P < 0.05), dependent variable: teachers' performance in instructional delivery

To determine if the predictor variable was significantly related to or predicted complying to quality assurance and teachers' productivity in public senior secondary schools in Rivers State, the t-value was presented in table 7. The t-value for complying to quality assurance was (11.318, P < 0.000). Complying with quality assurance had a significant relationship (P < 0.05) with and predicted teachers' productivity in public senior secondary schools in Rivers State.

Teachers who complied with quality assurance in schools performed better than their counterparts who did not comply with quality assurance measures in public senior secondary schools in Rivers State.

Ho<sub>2</sub>: There is no significant relationship between adherence to output specification and teachers' productivity in public senior secondary schools in Rivers State.

Table 8: Analysis of Variance of Regression on Adherence to Output Specification and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

			- ~ <del></del>	- J	- 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
Mode 1		Sum of Squares	df	Mean Square	F	Sig.
	ъ .	4077 770	1	4077 770	122 040	oooh
	Regressio	4977.778	1	4977.778	132.848	$.000^{b}$
	n					
	Residual	13564.011	362	37.470		
	Total	18541.788	363			
	1000	105 11.700	303			

a. Dependent variable: teachers' productivity

Table 8 showed that the F-value of 132.848 is significant at 0.000. This indicated that adherence to output specification was significantly related to teachers' productivity in public senior secondary schools in Rivers State. Therefore, the null hypothesis of no significant linear relationship between adherence to output specification and teachers' productivity in public senior secondary schools in Rivers State was rejected.

b. Predictor: (Constant), adherence to output specification

Table 9: Model Summary for Adherence to Output Specification and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

Model	R	R Square	Adjusted R	Std. Error of the
			Square	Estimate
	.518a	. 2283	.266	6.12125

The coefficient of determination (R<sup>2</sup>) is 0.2283. This indicates that 22.83% of the variance in teacher's productivity is caused by variations in the predictor variable. Therefore, 22.83% of the variance in teacher's teachers' productivity in public senior secondary schools in Rivers State is predicted by adherence to output specification.

Table 10: t-Values of Adherence to Output Specification and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

Model	Unstand Coeffici		Standardized Coefficients	t	Sig.
	В	Std.	Beta	-	
		Error			
(Constant)	12.128	1.283		9.455	.000**
Adherence to output specification	1.345	.117	.518	11.526	.000**

(\*\* Sig. at P < 0.05), dependent variable: teacher's productivity

To determine if the predictor variable was significantly related to or predicted teacher's productivity in public senior secondary schools in Rivers State, the t-value was presented in table 10. The t-value for adherence to output specification was (9.455, P < 0.000). Adherence to output specification had significant relationship (P < 0.05) with and predicted teacher's productivity in public senior secondary schools in Rivers State. Teachers who adhered to output specification performed better than their counterparts who did not adhere to output specification in public senior secondary schools in Rivers State.

**Hypothesis 3:** There is no significant relationship between knowledge of the job and teachers' productivity in public senior secondary schools in Rivers State.

Table 11: Analysis of Variance of Regression on Knowledge of the Job and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

Mode 1		Sum of Squares	df	Mean Square	F	Sig.
	Regressio n	6869.686	1	6869.686	213.057	.000 <sup>b</sup>
	Residual Total	11672.102 18541.788	362 363	32.243		

a. Dependent variable: teachers' productivity

b. Predictor: (Constant), knowledge of the job

Table 11 showed that the F-value of 213.057 is significant at 0.000. This indicated that knowledge of the job was significantly related to teachers' productivity in public senior secondary schools in Rivers State. Therefore, the null hypothesis of no significant linear relationship between knowledge of the job and teacher's productivity in public senior secondary schools in Rivers State was rejected.

Table 12: Model Summary for Knowledge of the Job and Teachers' Productivity

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.609 <sup>a</sup>	. 2749	.369	5.67833

The coefficient of determination (R<sup>2</sup>) is 0.2749. This indicates that 27.49% of the variance in teachers' productivity in public senior secondary schools in Rivers State is caused by variations in the predictor variable. Therefore, 27.49% of the variance in teachers' productivity in public senior secondary schools in Rivers State is predicted by knowledge of the job.

Table 13: T-Values of Knowledge of the Job and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	В	Std. Error	Beta	_	
(Constant)	11.458	1.069		10.720	.000**
knowledge of the job	1.224	.084	.609	14.5396	.000**

(\*\* Sig. at P < 0.05), dependent variable: teachers' productivity

To determine if the predictor variable (knowledge of the job) was significantly related to or predicted teachers' productivity in public senior secondary schools in Rivers State, the t-value was presented in table 13. The t-value for knowledge of the job was (10.720, P < 0.000). Knowledge of the job had significant relationship (P > 0.05) with and predicted teachers' productivity in public senior secondary schools in Rivers State. Teachers who had knowledge of the job performed better than their counterparts who did not have knowledge of the job in public senior secondary schools Rivers State.

**Hypothesis 4:** There is no significant relationship between creative initiative and teachers' productivity in public senior secondary schools in Rivers State.

Table 14: Analysis of Variance of Regression on Creative Initiative and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

Mode 1		Sum of Squares	df	Mean Square	F	Sig.
	Regressio	2894.766	1	2894.766	66.972	.000 <sup>b</sup>
	n					
	Residual	15647.023	362	43.224		
	Total	18541.788	363			

a. Dependent variable: teachers' productivity.

b. Predictor: (Constant), creative initiative

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Table 14 showed that the F-value of 66.972 is significant at 0.000. This indicated that creative initiative relationships were significantly related to teachers' productivity in public senior secondary schools in Rivers State. Therefore, the null hypothesis of no significant relationship between creative initiative and teachers' productivity in public senior secondary schools in Rivers State was rejected.

Table 15: Model Summary of Creative Initiative and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.395 <sup>a</sup>	.156	.154	6.57448

The coefficient of determination (R<sup>2</sup>) is 0.154. This indicates that 15.6% of the variance in teachers' productivity is caused by variations in the predictor variable (creative initiative). Therefore, 15.6% of the variance in teachers' productivity in public senior secondary schools in Rivers State is predicted by creative initiative.

Table 16: T-values of Creative Initiative and Teachers' Productivity

	Unstand	Unstandardized			
Model	Coeffici	ents	Coefficients	_ t	Sig.
	В	Std. Error	Beta		
(Constant)	20.762	.775		26.793	**000
Interpersonal	.581	.071	.395	8.184	.000**
relationship					

(\*\* Sig. at P < 0.05), dependent variable teachers' productivity

To determine if the predictor variable (creative initiative) was significantly related to or predicted teachers' productivity in public senior secondary schools in Rivers State, the t-value was presented in table 16. The t-value for creative initiative was (26.793, P<0.000). Creative initiative had significant relationship (P>0.05) with and predicted teachers' productivity in public senior secondary schools in Rivers State. Teachers who had creative initiative in schools performed better than their counterparts who do not have creative initiative in public senior secondary schools in Rivers State.

### **DISCUSSION OF FINDINGS**

The discussion of findings is arranged in the order of the research questions and hypotheses that guided the study.

# Relationship between Complying to Quality Assurance and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

The findings in this regard showed that the relationship between complying to quality assurance and teachers' productivity in public senior secondary schools in Rivers State was positively substantial. The positive relationship between complying to quality and teachers' productivity means that as scores on complying to quality increases, there is a corresponding



increase in the scores on teachers' productivity in public senior secondary schools in the area. The test of hypothesis revealed a significant relationship between complying to quality assurance and teachers' productivity in public senior secondary schools in Rivers State. 23.25% of the variance in teachers' productivity in public senior secondary schools in Rivers State is predicted by compliance to quality assurance. Teachers who complied with quality assurance in schools performed better than their counterparts who did not comply with quality assurance measures in public senior secondary schools in Rivers State. These findings agreed with that of Anele and Mbah (2019) on performance evaluation and training of secondary school teachers as tools of improving students' academic performance in Orumba South Local Government Area of Anambra State. Also, the finding of this study agrees with that of Obasi and Ohia (2014) on teacher performance assessment is critical to rational training and development. The result of this study may be due to the fact that quality assurance is used to carry out quality management and is a method to help make sure certain quality standards are fulfilled. Quality assurance can be particularly important to ensure that a school develops and performs in line with the curriculum and standards in place. These standards can be assessed both internally and externally to ensure that every teacher follows quality assurance guidelines. These assessments can involve school self-evaluation, external examination, evaluation of teachers, school leaders and student assessment to make sure targets are met. These can include inspectors arriving in school, head teacher appraisals and principals. Schools will generally have a quality assurance management plan to ensure they follow the curriculum guidelines, help children flourish and deliver good – quality teaching and learning.

# Relationship between Adherence to Output Specification and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

The findings in this regard showed that the relationship between adherence to output specification and teachers' productivity in public senior secondary schools in Rivers State was positively substantial. The positive relationship between adherence to output specification and teachers' productivity means that as scores on adherence to output specification increases, there is a corresponding increase in the scores on teachers' productivity in public senior secondary schools in the area. The test of hypothesis revealed a significant relationship between adherence to output specification and teachers' productivity in public senior secondary schools in Rivers State. 22.83% of the variance in teachers' productivity in public senior secondary schools in Rivers State is predicted by adherence to output specification. Teachers who adhered to output specification in schools performed better than their counterparts who did not adhered to output specification measures in public senior secondary schools in Rivers State. The finding of this study agrees with that of Sabri (2016) that adherence to output specification is significantly related to productivity. Also, the finding of this study agrees with that of Bernadette (2019) on performance appraisal strategies on the performance of teachers in public secondary schools in Kiambu County, Kenya revealed that there is a significant relationship between adherence to standards and teacher's job-performance. The result of this present study may be due to the fact that adherence to output specification is the compliance to the stipulated standard of the senior secondary educational levels. It is the foundational blocks of both the set or established standard and following those standards for academic excellence. This exists to facilitate the improvement of instruction. The evaluation procedures and associated instruments provide the framework for assessing teacher performance as it relates to the adopted performance criteria, and a professional growth plan will be developed to support and enhance professional development.



# Relationship between Knowledge of the Job and Teachers' Productivity in Public Senior Secondary Schools in Rivers State

The findings in this regard showed that the relationship between job knowledge and teachers' productivity in public senior secondary schools in Rivers State was positively substantial. The positive relationship between knowledge of the job and teachers' productivity means that as scores on job knowledge increases, there is a corresponding increase in the scores on teachers' productivity in public senior secondary schools in the area. The test of hypothesis revealed a significant relationship between knowledge of the job and teachers' productivity in public senior secondary schools in Rivers State. 47.47% of the variance in teachers' productivity in public senior secondary schools in Rivers State is predicted by job knowledge. Teachers who had job knowledge in schools performed better than their counterparts who do not have job knowledge in public senior secondary schools in Rivers State. The finding of this study agrees with Obasi and Ohia (2014) on teacher performance assessment is critical to rational training and development. Job knowledge is a necessity to stability for regular checks and monitoring for the growth and development of teaching and learning. The study therefore examined the techniques adopted and the frequency of their utilization among public and private secondary schools in South East Nigeria. Their study revealed that job knowledge significantly related to teachers' high performance. Moreso, the finding of this study agrees with that of Sabri et al (2016) on effectiveness of the teacher performance evaluation methods practiced by managers of public schools in the directorate of education in Southern Jordan Valley/Jordan from the point of view of teachers. Their study revealed that knowledge is significantly related to teachers' effectiveness. This present result may be due to the teacher's job knowledge as a body of professional knowledge that encompasses both knowledge and general pedagogical principles and skills and knowledge of the subject matter to be taught. Emphasis should be placed on frequent monitoring of professional documents by the head teachers on schemes of work, lesson plans, lessons notes, records of work and class attendance registers should be checked regularly, conducting classroom visits, observation and checking of teachers' professional records have to be done seriously in order to improve teachers' job knowledge. Maria (2017) explained that teachers' performance evaluation enabled teachers to be acquainted with the job roles and contributed significantly to school goals and objectives.

## Relationship between Creative Initiative and Teachers' Productivity in Public Senior Secondary Schools in Rivers State.

The findings in this regard showed that the relationship between creative initiative and teachers' productivity in public senior secondary schools in Rivers State was positively substantial. The positive relationship between creative initiative and teachers' productivity means that as scores on creative initiative increase, there is a corresponding increase in the scores on teachers' productivity in public senior secondary schools in the area. The test of hypothesis revealed a significant relationship between creative initiative and teachers' productivity in public senior secondary schools in Rivers State. 15.6% of the variance in teachers' productivity in public senior secondary schools in Rivers State is predicted by creative initiative. Teachers who had creative initiative in schools performed better than their counterparts who do not have creative initiative in public senior secondary schools in Rivers State. The findings of this study agree with that of Bernadette (2019) on performance appraisal strategies on performance of teachers in public secondary schools in Kiambu Country, Kenya. Their findings revealed that there is a significant relationship between innovative strategy and teachers' high performance. Likewise, the finding of this study agrees with that of Obasi and



Ohia (2014) on teacher performance assessment related to the fact that innovative strategies are critical to teachers' job performance. Their study revealed that creative or initiative strategies significantly relate to teachers' high performance. The result of the present study may be due to the fact that teachers' evaluation involves an accurate appraisal of the effectiveness of teaching, its strength and areas of development, followed by feedback, coaching, support and opportunities for professional development. The required capacity to think of new ideas, plans, actions, methods and many more, is the power and ability to think out of the box and be explorative for greater achievements in the educational setting. It is necessary to assert that creative initiative can only be possible if teachers' performance evaluation is in place and functional. When teachers are aware of their performance, it will spur them to be creative and be productive in the organization where they find themselves.

#### **CONCLUSION**

This study investigated performance evaluation strategies and teachers' productivity in public senior secondary schools in Rivers State and found out that performance evaluation strategies such as complying to quality assurance, adherence to output specification, job knowledge and creative initiative, are significantly related to teachers' productivity in public senior secondary schools in Rivers State. Therefore, teachers' complying to quality assurance, adherence to output specification, job knowledge and creative initiative, independently and jointly predict teachers' productivity in senior secondary schools in Rivers State.

#### RECOMMENDATIONS

On the basis of the findings made, and conclusion drawn from the findings, the following recommendations are made:

- 1. The government in collaboration with the Teachers Registration Council of Nigeria (TRCN) should make the necessary legal provisions that will make it mandatory for all public schools to regularly evaluate their teachers in order to identify their professional needs because performance evaluation is related to productivity.
- 2. The government should provide a legal framework that coordinates and harmonizes the best performance evaluation strategy to ensure standards and uniformity.
- 3. The Ministry of Education and the relevant agencies should make the necessary provisions for the training of personnel for competency evaluation in their right quantities and quality.
- 4. Performance evaluation should be participatory and collaborative between the evaluators and the appraisee to ensure openness and sincerity.

#### REFERENCES

- Annamalai, T., Abdullah, A. G. K., Alazidiyeen, N. J.(2010). The Mediating Effects of Perceived Organizational Support on the Relationships Between Organizational Justice, Trust and Performance Appraisal in Malaysian Secondary Schools. *European Journal of Social Sciences*, 13(4), 623-632. http://www.journalsagapud.com
- Applelbaum, M. & Armstrong, S. (2003). Stress free performance appraisal. Career Press.
- Arar, O. (2016). Implications of Principals' Teachers Performance Appraisal and Decision-Making in Arab Schools in Israel. *Research in Educational Administration & Leadership*, 1(2), 255-285...
- Arifin, H. M. (2015). The influence of competence, motivation, organizational culture to high school teacher job satisfaction and performance. *International Education Studies*, 8(1),38 45.
- Armstrong, M., (2005). A handbook of personnel management practices. John Wiley & Sons. Armstrong, M., Baron, A. (2004). Managing performance: Performance appraisal. Oxford University Press.
- Aseka, J. M. (2013). Strategies adopted by small and medium enterprises in Nairobi Kenya to improve performance. University of Nairobi Publishers. <a href="http://www.erepository.uonbi.ac.ke">http://www.erepository.uonbi.ac.ke</a>
- Baba, W.M (2012). Teacher motivation and quality education delivery: A study of public basic schools in Tamale Metropolis in Ghana. *International Journal of Social Science & Interdisciplinary Research*, *I*(12),29-46.
- Dittimiya, L. A. (1998). Performance evaluation and training of secondary schools. http://www.acjol.org
- Dulewicz, V. (1989). Performance appraisal and counseling. (Section Editor). In Herriot, P. (Ed), *Handbook of Assessment and Selection in Organization* www.whatishumanresource.com
- Fisher, K. (2003). Demystifying critical reflection: Defining criteria for assessment. *Higher Education Research & Development*, 22,313-325. http://www.dx.doi.org/10.1080/0729436032000145167
- Fletcher, C. (2001). Performance appraisal and Management: the developing research agenda. *Journal of Occupational and Organizational Psychology*, 74(4). <a href="http://www.psycnet.apa.org">http://www.psycnet.apa.org</a>
- Kaczmarczyk, S., & Murtough, J. (2002). Measuring the performance of innovative workplaces. *Journal of Facilities Management*, *I*(2). <a href="http://www.emerald.com">http://www.emerald.com</a>
- Kandula, S. R. (2006). *Performance management. In performance management Strategy.* <a href="http://www.eajournals.org">http://www.eajournals.org</a>
- Kpolovie, P. J. (2010). Advanced research methods. Springfield Publishers Ltd.
- Kyriakides, L.(2013). A dynamic integrated approach to teachers professional development: impact and sustainability of effects on improving teachers' behavior and students outcomes. *Teaching and Teacher Education*, 29, 1-12. <a href="http://www.eric.ed.gov">http://www.eric.ed.gov</a>
- Lebas, M. J. (1995). Performance measurement and performance management. *Into. J. Production Economics*, 41, 23-33.
- Madi, F.(2012). The utility of equity theory in enhancing organizational effectiveness. *European Journal of Economics, Finance and Administrative Sciences*, 46, 1450-2275. <a href="http://www.semanticscholar.org">http://www.semanticscholar.org</a>

- Maranya, J.M. (2001). The supervisory roles of secondary schools head teachers in curriculum implication in machakos district Kenya. Unpublished M.Phil Dissertation. <a href="http://www.oapub.org">http://www.oapub.org</a>
- Maria, C. O. (2021). Teacher workforce and the impact of Covid- 19: AQ & A. http://www.bu.end
- Marshall, C., & Rossman, G. B. (2011). *Designing qualitative research* (5<sup>th</sup> ed.). Safe Publication. <a href="http://www.scrip.org">http://www.scrip.org</a>
- Moorhead, G., & Griffin, M. (1992). Organizational behavior www.researchgate.net
- Oduwaiye, R.O. and Oyedepo, B. (2011). Enhancing Nigerian teachers' productivity through effective personnel appraisal system. *African Journal of Studies in Education*, 8(1), 2, www:
  - https://kwcoeilorin.edu.ng/publications/staff\_publications/oyedepo\_bosede\_33zh/enhan\_cing-nigerian-teachers-productivity-through-effective-personnel-appraisal-system\_oyedepo\_bo.pdf
- Otley, D. (1996). Performance management: A framework for management control systems research. *Management Accounting Research*, 10, 363-382.
- Shulman, E. P., Smith, A. R., Silva, K., Icenogle, G., Duell, N., Chein, J., & Steinberg, L. (2016). The dual system model: Review, reappraisal and reaffirmation. Developmental Cognitive Neuroscience, 17, 103-177. http://www.psycnet.apa.org