

# Using a Systematic Review to Explain the Association between Training and Job Performance

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## Abstract

**Background/Objectives:** Studies investigating the association or effect between training and job/employees' performance that met the data extraction and quality assessment criteria are included in this review. **Methods/Statistical Analysis:** This study systematically reviews published studies to describe the association between training and job/employees' performance, as well as their influence on each other. This involves systematically reviewing studies by searching different databases including the British Nursing Database, the Digital National Security Archive, ERIC, LISA, ProQuest Central and ProQuest Dissertation and Thesis. The search, completed in November 2018, looks for studies that include the following terms in their abstracts: "Training," and "Job Performance," or "Employees' Performance." **Findings:** The findings show that the correlation between training and job/employees' performance are significant in ten of the studies included in this systematic review and only one study shows no association between training and job/employees' performance. In addition, the studies show that training impacted job/employees' performance while indicating that training was an independent variable and job/employees' performance was a dependent variable in most of the studies. This review systematically collects and assesses studies to explore the relationship between training and job/employees' performance. **Improvements/Applications:** Training is one of the essential elements in organizations' performance. It enhances employees' skills, knowledge and competencies, which in return increase the organization's overall performance. Also, training is an important instrument for improving employees' performance. Furthermore, this systematic review is the first of its kind, up to the author's knowledge, to explore the association between training and job/employees' performance and it provides recommendations for training and human resource managers.

**Keywords:** Employees' Performance, Job Performance, Organization's Performance, PRISMA, Systematic Review, Training

## 1. Introduction

Training is a major competitive advantage and employees keen to experience and benefit from training tends to stay at the forefront of their professional fields. Several advantages are obtained through training, including job satisfaction, empowerment and commitment<sup>1,2</sup>. In addition, training programs are meant to upgrade and maintain the employee's skills, knowledge and attitudes<sup>3</sup>. Training needs assessments are conducted to investigate problems that employees encounter and to identify potential solutions<sup>4</sup>. There are different types of training methods an organization can conduct, <sup>4</sup>in their study "Training methods; A review and Analysis," summarize

these methods as follows: Case study, job rotation, lecture, job shadowing, role play, simulation, team training, apprenticeship, simulation, internship, mentoring and game-based activities.

There are several definitions of job performance; according to<sup>5</sup>, an assessment of job performance considers how well individuals complete their tasks in accordance to the standards. Furthermore, <sup>6</sup>explained job performance as the employee's effectiveness in completing the duties and responsibilities. Moreover, job performance is the combination of three elements engaging together to complete a task, which are: Skills, work conditions and effort<sup>7</sup>. According to<sup>8</sup>, the employees' performance can be assessed based on behaviour, attitude and results.

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Meanwhile,<sup>9</sup> specifies that an employee's performance can be assessed based on quality, productivity, knowledge, reliability, punctuality and independence. The aim of this study is to present a systematic review of the association between training and employees' job performance. The terms job performance and employees' performance are used interchangeably.

Most of the studies about training and job performance followed the typical research or review methods<sup>10-12</sup>. However, this study investigates the correlation between training and job performance using a systematic review method.<sup>13</sup> defined systematic review as "a method of making sense of large bodies of information and a means of contributing to the answers to questions about what works and what does not-and many other types of question too" (p. 2). Furthermore, systematic review attempts to identify, assess and synthesise all related studies to answer a research question(s)<sup>13</sup>.<sup>14</sup> stressed the importance of systematic reviews as:

"The aim of systematic review is to provide collective insights through theoretical synthesis into fields and sub-fields. For academics, the reviewing process increases methodological rigour. For practitioners/managers, systematic review helps develop a reliable knowledge base by accumulating knowledge form range of studies." (p. 220).

Also,<sup>13</sup> explained that the systemic review focuses on applying scientific process than including literature review in a study that uses systematic review method as follows:

"The systematic review more "fit for purpose" of answering specific questions and testing hypotheses than traditional review. It is less of a discussion of the literature, and more of a scientific tool; but it can also do more than this, and can be used to summarize, appraise, and communicate the results and implication of otherwise unmanageable quantities of research." (p. 10).

Moreover, the advantage of using systematic review protocol is to provide a combination of robust studies in the specific field that practitioner or policymaker could use<sup>13</sup>. Also, systematic review can enhance the quality and strength of traditional literature by increasing the scope, focusing on empirical evidence and being replicable and translucent<sup>15</sup>.<sup>13</sup> outlined reasons for doing systematic reviews such as 'when an accurate picture of past research and past methodological research is required to promote the development of new methodologies.' (p. 21). This study is the first of its kind to systematically examines the

association between training and job/employees' performance by collecting and reviewing relevant studies.

The remaining of this article is arranged as follows: Section 2 addresses the methodology in detail including research question, search approach, inclusion and exclusion criteria, study selection method and quality assessment tool. Section 3 reports the results of the study. Section 4 addresses the discussion. Section 5 explains the limitations of the study. Section 6 presents the conclusion of the study.

## 2. Methodology

### 2.1 Research Question

The existing literature review illustrates type of relationship between training and job performance. However, according to the search done in this review, there has been no systematic review concerning the correlation between training and job performance. Therefore, it is important to systematically explore the literature to determine the association that exists between training and job performance. Therefore, this systematic review addresses the following question:

Q1. Using a systematic review approach; what type of association arises between training and job/employees' performance?

### 2.2 Search Approach

Systematic reviews normally include searching different databases and extracting the relevant studies, with relevance defined by inclusion and exclusion criteria and the application of quality appraising criteria. Following data extraction, such reviews explain the results and provide a discussion and a conclusion. For this review, the search strategy started with selecting the databases to be used; these include the following six databases:

- British Nursing Database (1994–current).
- Digital National Security Archive (1945–current).
- Education Resources Information Central (ERIC) (1966–current).
- Library and Information Science Abstracts (LISA) (1969–current).
- ProQuest Central (1970–current).

- ProQuest Dissertation and Thesis.

The search limited the inquiry to “Abstract-AB” only; the following keywords were used for the search: “Training” and “Job performance” OR “Employees’ performance”. These limits narrowed and maintained the quality of the study. No limit for date of publication was applied. The search was conducted in November 2018.

### 2.3 Inclusion and Exclusion Criteria

The inclusion and exclusion criteria for this review include studies that reveal an association between training and job/employees’ performance. The studies selected are peer-reviewed, full text and all are in English. No book reviews or books are included and no limits are set for the year or geographical location of the studies under review. However, studies written in English language only were included.

### 2.4 Study Selection Method

To select the appropriate and suitable studies for this review, the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA)<sup>16</sup> flow chart. (Figure 1) is used to explain the process of screening and selecting eligible studies. The number of studies included in this review is 11. For each study, the data extraction includes the author(s); year of publication; sample frame, sample size and method; kinds of variables used in the study; training variable; job/employees’ performance variable; and statistics calculated used in each study.

### 2.5 Quality Assessment Tool

Assessing the quality of the studies is essential to avoid any bias in the studies. Tools and checklists that aim to examine whether a study is suitable for answering the review question(s) or not have been developed in various fields<sup>13</sup>. Some of the quality appraising tools and checklists have been developed and used in health care studies, such as the Centre for Evidence Based Medicine (CEBM), AMSTAR (A Measurement Tool to Assess Systematic Reviews), CASP (Critical Appraisal Skills Program), the Cochrane handbook, the COnsensus-based Standards for the selection of health Measurement Instruments (COSMIN) checklist, the Newcastle-Ottawa Scale (NOS) etc. However, the Quality Assessment Checklists (QAC) can be modified according to the nature of the study<sup>17</sup>. After reviewing the quality assessment tools available

and since the studies included in this systematic review include questionnaires/surveys, the “Critical Appraisal Checklist for a Questionnaire Study” developed by<sup>18</sup> is used to assess each study. Based on the checklist developed by<sup>18</sup>, this systematic review included seven elements to assess quality of the studies: Research questions, format, sampling, response rate, coding and analysing, results, and discussion and conclusion. Adapted from<sup>19</sup>, there are 8 questions in this quality appraisal checklist, making up a total score of 8 if the study under consideration passes all the criteria (Table 1).

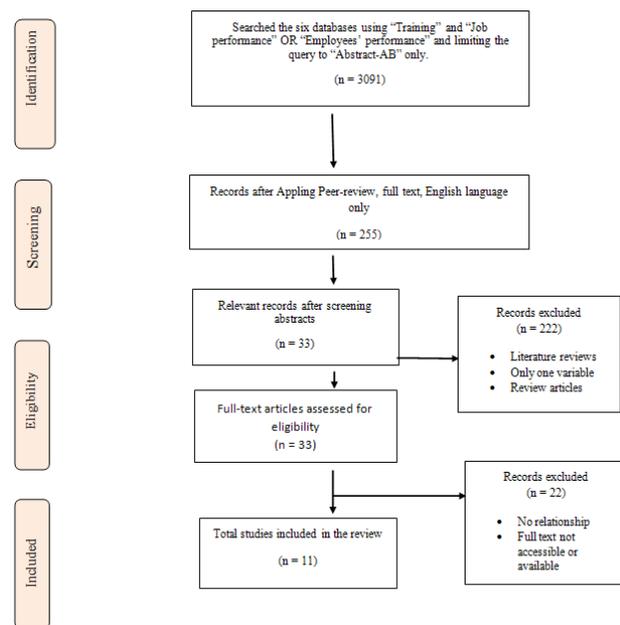


Figure 1. Diagram of selecting studies using PRISMA.

## 3. Results

The quality appraising checklist for the studies included in this systematic review (Table 1) showed that research question(s), sampling, response rate, coding and analysis and results obtained the maximum points; however, format of the questionnaire obtained nine out of the maximum eleven points in this category. Furthermore, the discussion and conclusion obtained eighteen points out of the maximum twenty-two points in this category. Some of the authors failed to include recommendations at the end of the study. When it comes to the format of the questionnaire, some of the authors failed to report what type of scale was used in the questionnaire. In most of the studies, the questionnaires were adapted and Likert scale was used to measure the variables. Furthermore, the

**Table 1.** Quality evaluation of studies included, adapted from [19]

Studies	Research question(s) (1)	Format (1)	Sampling (1)	Response rate (1)	Coding & analysis (1)	Results (1)	Conclusion and discussion (2)	Total points (8)
Saks [20]	1	1	1	1	1	1	2	8
Morin and Renaud [21]	1	0	1	1	1	1	2	7
Nkebem [22]	1	1	1	1	1	1	2	8
Awang <i>et al</i> [23]	1	0	1	1	1	1	1	6
Uchendu <i>et al.</i> [24]	1	1	1	1	1	1	2	8
Ma and Chang [25]	1	1	1	1	1	1	1	7
Atanet <i>al.</i> [26]	1	1	1	1	1	1	1	7
Sattar <i>et al.</i> [27]	1	1	1	1	1	1	2	8
Paul <i>et al.</i> [28]	1	1	1	1	1	1	1	7
Raza <i>et al.</i> [29]	1	1	1	1	1	1	2	8
Budiningsihet <i>al.</i> [30]	1	1	1	1	1	1	2	8
Total actual points	11	9	11	11	11	11	18	82
Total Maximum points	11	11	11	11	11	11	22	88

**Table 2.** Features of studies and statistics calculated, adapted from [19]

Study (Year)	Population	Sample size & method	Other variables included in the study	Training variable	Jobperformance variable	Types of statistics used in the study
Saks [20]	Large&medium accounting firm in the vicinity	152; random sampling	Training amount and helpfulness; intention to quit, job satisfaction, ability to cope, and commitment.	Independent	Dependent	Pearson R =0.29*, (p<0.05)
Morin and Renaud [21]	Employees at Canadian Financial Institution	1484; random probabilistic sampling	Corporate university training courses, Control Variables: Tenure, age, hours of work, level of education hourly wage, junior auxiliary, senior auxiliary, senior, intermediate and junior manager, pre-training performance	Independent	Dependent	$\beta=0.48$ , (p<0.01)
Nkebem [22]	11 University Libraries	172; NM	In-service training	Independent	Dependent	Pearson's R=.275*, (p<0.05)

Awang <i>et al.</i> [23]	1200 employees of hotels, resorts, & ICT's	458; random sampling	Training content, financing training, trainers' quality, cognitive competence, technical skills, respect, work commitment, gender, age, years of schooling, current work experience.	Independent	Dependent	$\beta = 0.113^{**}$ , ( $p < 0.05$ )
Uchendu <i>et al.</i> [24]	Secondary school teachers	200 teachers from 18 schools	Staff motivation, staff training	Independent	Dependent	Pearson's $R = 0.62^*$ , ( $p < 0.05$ ) (continued)
Ma and Chang [25]	1000 Employees of 18 international tourist hotels	451; stratification sampling	Perceived organizational support, organization commitment, training motivation, career planning, job performance, training transfer.	Independent	Dependent	$\beta = 0.963^{***}$ , ( $p < 0.001$ )
Atanet <i>et al.</i> [26]	103 productions workers of Linaco Manufacturing	85; NM	Training, effective training practices	Independent	Dependent	Pearson's $R = 0.341^{**}$ , ( $p < 0.001$ )
Sattar <i>et al.</i> [27]	225 employees at banks	181; NM	Training, rewards, empowerment, employee satisfaction, employee performance, employee engagement	Independent	Dependent (employees' performance)	$\beta = 0.331^{**}$ , ( $p < 0.01$ )
Paul <i>et al.</i> [28]	Workers from 59 Krishi Vigyan Kendras	231; random sampling	Age, professional experience, marital status, education qualification, gender, participation in workshop/seminar, team-man-ship, communication skill, participation in training programs	Independent	Dependent	Pearson's $R = 0.22^*$ , ( $p < 0.01$ )
Raza <i>et al.</i> [29]	Employees at 25 commercial banks	110; purposive sampling	Performance appraisal & achievement, compensation & benefits, workplace communication, training & development.	Independent	Dependent	Pearson $R (T \& D) = 0.071^{**}$ , ( $p > 0.01$ )
Budiningsihet <i>al.</i> [30]	357 employees of Finance Tax Court Secretarial	100; quota sampling	Training intervention, employees' performance	Independent	Dependent (employees' performance)	Pearson $R = 0.671^{**}$ , ( $p < 0.01$ )

Notes: NM= Not Mentioned

sampling method in the studies was random sampling in three studies; random probabilistic, stratification, purposive and quota sampling each in one study and the rest of studies did not indicate the sampling method. The summary of the features of the studies and the statistics calculated for the relationship between training and job performance is shown in (Table 2). Eleven studies were included in Table 2; which contained the names of the authors, population, sample size and method, different variables in each study, independent and dependent variables and the statistics calculated in the study. Most of the participants in the 11 studies were employees, teachers, librarians, managers and workers.

The systematic review goal is to assess the association between training and job performance; the best way to explain this relationship by interpreting the association found in the studies using the correlation coefficient. This is a method of explaining the direction and strength of a linear relationship between two variables. The value of this relationship is between -1 and +1<sup>31</sup>. The relationship between two variables range from no relation (0) to perfect relation (1). In addition, the direction of the relationship can be positive or negative. The author used<sup>32</sup> guidelines to explain the strength of the correlation effect size. An association of 0.10 is considered a weak correlation; a correlation of 0.30 represents a moderate relation and an association of 0.50 or larger is considered a strong correlation between variables.

In addition, the standardized beta ( $\beta$ ) was found in some of the studies. The standardized beta ( $\beta$ ) coefficient compares the strength of the effect of an independent variable to that of the dependent variable. The rate of the  $\beta$  coefficient fluctuates from -1 to +1; the higher the absolute value of the beta coefficient, the stronger the effect. If the value of  $\beta$  is equal to 0, there is no effect between the variables; if the value is positive and closer to 1, then the independent variable strongly affects the dependent variable and if it is negative, then the impact is negative between the two variables. Table 2 shows the values of Pearson's correlation and  $\beta$  coefficient for the studies included in this review.

Seven studies applied the Pearson's correlation coefficient ( $r$ ) to find the association between training and job/employees' performance. In the remaining four studies, the  $\beta$  coefficient was used to assess the influence of training on job/employees' performance. The lowest value of the Pearson's coefficient was 0.22 and the highest value was 0.671 and six of the seven studies showed the direction

of the association between training and job performance was positive. In addition, training was the independent variable in all the studies and the dependent variable was job/employees' performance. In only one study, there was no association between training and job performance with Pearson's Correlation equal to 0.071 ( $p > 0.01$ ). The standardized  $\beta$  was found in four studies fluctuating from 0.113 to 0.963 where training effected job performance. The value for these studies showed that the association between training and job performance were significant at  $p < 0.05$ ,  $p < 0.01$  and  $p < 0.001$  levels.

## 4. Discussion

The studies in this systematic review expressed the relationship between training and job performance. Ten studies demonstrated that the association between training and job/employees' performance was significant and that training impacted the job/employees' performance, while one study showed there was no correlation between training and job performance.

Previous studies have shown correlation between training and job/employees' performance<sup>33-34</sup>. <sup>35</sup> further explained that job performance can be influenced by the employees' perception about the human resource management practices. <sup>36</sup> added that employee's performance depend on developing the appropriate skills and knowledge. Therefore, for training to influence employees' performance, organization should consider linking training programs with human resource management practices.

Training was the independent variable and job/employees' performance was the dependent variable in most of the studies; also, the training variable influenced the job performance. This outcome has demonstrated the importance of training in general and its connection to the organization, since performance depends on the skills, knowledge and competencies of the employee. The outcomes of this study also emphasize that employees who engaged in training courses perform their job better than those who did not have the opportunity to take training courses.

Some studies have considered employees' performance an important aspect of the organizational performance<sup>37,38</sup>. The findings of this study showed the training impacted job/employees' performance; <sup>39</sup> stated that employees 'capabilities developed through effective training programs. As results, improving employees'

performance will enhance the organization overall performance.

Searching and synthesising studies in systematic approach may have suggestions for practice and theory; organizations should conduct training courses for workers to increase their skills, knowledge and attitude, which in return will increase the organization's performance. In addition, human resource managers should conduct training needs analysis before delivering any training courses to ensure that employees will benefit from the training programs and improve their skills and competencies.

## 5. Limitations

The present review highlights the association between training and job performance and the strength of this systematic review is that the studies found in six databases cover a wide range of peer-reviewed and full text articles/research papers. The author used clear inclusion and exclusion standards and appraised the quality of the studies included. However, this systematic review has several limitations. One of these limitations, it included only English language studies which means excluding other studies written in other languages. Additionally, only studies with a relation or an association between training and job/employees' performance were assessed in this study.

## 6. Conclusion

Based on 11 studies examined, the findings show that there was an association between training and job/employees' performance. Organizations must provide their employees with the necessary training programs to improve their skills and knowledge. Training programs should be delivered and utilized according to the training needs of each employee. Based on the findings, the author presents the following recommendations:

- The Organization should align the training programs with employees' needs.
- The Organization should link training objectives with its strategies.
- The Organization's training programs should be updated and utilize technologies and strategies to impact employees' performance effectively.

- The organization's training programs should be available for all employees.

Thus, all employees can improve their skills, knowledge and competencies which in return improve the overall organization's performance.

Further study may examine the differences between male and female perceptions about training. Also, a study is made examining male and female perspectives on job performance.

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