

## **The Effectiveness of Cross-Training on Increasing Teacher Competence in Learning Design**



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**ABSTRACT:** This study aims to determine the effect of cross-training on increasing teacher competence in designing learning. This research is quasi-research conducted on a group of teachers who participate in training activities. The research subjects were the training participants, totaling 20 elementary school teachers. The method used is one group pretest-posttest, where the research subjects before the intervention conveyed their competence, and after the intervention conveyed their competence. The analysis technique uses N gain, calculating the difference from the pretest to the posttest. The results of the study show that cross-training is quite effective in increasing teacher competence in designing learning. Cross-training can increase competency through teamwork, and with its flexible nature, teachers as trainees can follow along and share knowledge with colleagues.

**KEYWORDS:** Cross-training, competence, performance

### **I. INTRODUCTION**

Competency development is a must for teachers because teachers are learning agents who show hope, and responsibility for science to students (Nur & Fatonah, 2022). Competence in the definition by Weinert (2001) is knowledge, ability, and willingness to deal with changing situations successfully and responsibly (Brandt, Bürgener, Barth, & Redman, 2019). Technological and scientific developments have influenced changes in teachers to improve competence.

Teacher competence in Indonesia must have pedagogic, personality, professional, and social competencies. Competencies that come into direct contact with students are pedagogy competencies, competencies related to the ability to manage learning. Teachers are not only in charge of teaching but dealing with teaching that helps people to learn. Teachers must understand the principles of learning and teaching, in this case, the teacher must master instructional design. Cross-training is a solution to improve teacher pedagogy competencies. Cross-training aims to enhance teamwork and the dissemination of knowledge to peers (Platt, Coventry, & Monterosso, 2019). Cross-training provides learning opportunities in carrying out various functions related to the field of work that enable them to become effective workers (Anyim, 2021). The purpose of cross-training for teachers is to increase pedagogical competence in designing effective learning. In carrying out this training, the teacher teaches his colleagues about the material that has been obtained and works together on a learning design preparation project. With cross-training it is hoped that teachers will have higher performance, increase their ability to work together, help each other, understand each other, communicate better, improve their ability to coordinate better and provide mutual motivation to colleagues (Hernaus, Černe, & Škerlavaj, 2021).

Cross-training has several advantages, namely (1) flexibility, employees can perform various tasks flexibly and employee skills increase overall making it easier for them to plan assignments for them, (2) having the optimal scope of work functions, that with cross-training avoids organizational breakdown due to absence of skilled employees, (3) optimal morale improvement, employees feel more valued and feel comfortable with their roles, (4) save costs, employees gain new skills and are experts in their fields, so no need to recruit new employees, (5) motivation, employees feel more valued and acknowledged that with cross-training including a form of investment in the resources needed to acquire new skills, (6) increase productivity, cross-training does not affect the productive hours of employees (Vasanthi & Basariya, 2018). Curriculum changes cause teacher panic and confusion in learning design. The development of pedagogy competencies related to learning design needs to be developed and improved.

Cross-training has a positive impact, as stated by Hopp & Oyen (2004), namely (1) low training costs incurred to increase employee productivity, because trained employees can do more work during scheduled working hours (great flexibility), can do the job faster; (2) the effectiveness of training time which allows shorter waiting times thereby increasing employee flexibility, increasing task speed, reducing preparation and submission time; (3) cross-training supports better internal and external quality; and (4) increase organizational flexibility, which will help provide a wider range of services or products, employees are equipped with more skills, provide redundancy of tasks that provide more reliable variety. Ninan, Roy, & Thomas (2019) said that cross-

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training has an impact in helping to increase productivity, advance careers, establish better interactions between colleagues, and manage time efficiently within the organization.

For cross-training to run efficiently, AttaAllah (2020) suggests several steps that must be followed, (1) identify tasks, (2) voluntary participation of participants, (3) specific skills, (4) reduce workload, (5) recognize and reward, (6) development plan. Cross-training is effective to implement because it allows employees to do a variety of jobs. The teacher, apart from being in charge of teaching, has other duties, namely making lesson plans and other tasks. So that cross-training helps to develop skills and gain knowledge that can help him develop a career (Morina, 2021). This study aims to determine the effectiveness of cross-training in increasing teacher competence in learning designs. Implementation of cross-training, teachers as trainees carry out training on colleagues.

### II. METHODS

The research method used is quasi-experimental with the type of research one group pre-test post-test. The research subjects were 20 elementary school teachers. The indicators seen in this study are related to learning design, namely (1) the accuracy of preparing learning objectives; (2) the accuracy of determining the learning strategy; (3) suitability assessment; (4) suitability of the early part of learning; (5) suitability of the core part with the learning strategy; (6) the suitability of the closing parts. The procedure for carrying out this research consisted of three stages, namely pre-test, intervention, and post-test. In the pre-test stage, participants displayed the learning designs that had been made. The intervention stage is the implementation of cross-training. And the third stage, namely the posttest where participants design learning designs based on the results of the training. The analysis technique used is n-gain, calculating the difference between the scores from the pre-test to the post-test. The conclusion criteria are based on Hake (1999) that there are three criteria, (1) "High-g" courses as those with  $\langle g \rangle > 0.7$ ; (2) "Medium-g" courses as those with  $0.7 > \langle g \rangle > 0.3$ ; (f) "Low-g" courses as those with  $\langle g \rangle < 0.3$ .

### III. RESULT AND DISCUSSION

Table 1, the results of the data analysis N gain score obtained .5417; SD = .13869 and N gain percentage 54.1655; SD = 13.86904. Based on the results of the N gain analysis in Table 1, it can be concluded that cross-training is quite effective in increasing teacher learning design competence. In Table 2 and Figure 1, the frequency N gain of the research subjects is one person at low (0.3), 15 people at medium, and 4 people at high ( $> 0.7$ ) (Hake, 1999). The results of this study are in line with Hedges, et al. (2019) demonstrated effective cross-training in nursing education. Zhang, et al. (2023) in their research showed that cross-training was more effective in increasing understanding than other models. Platt, Coventry, & Monterosso (2019) show that cross-training has a positive impact on teamwork, participants feel professionally satisfied and feel added value. Cross-training affects increasing social interaction and complementarity within the organization, as well as increasing effort in completing activities in other roles or tasks (Hernaus, Černe, & Škerlavaj, 2021).

**Table 1. N gain Score**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
NgainScore	20	.24	.73	<b>.5417</b>	.13869
NgainProsentase	20	23.81	73.33	<b>54.1655</b>	13.86904
Valid N (listwise)	20				

**Table 2. Frequency N gain score**

Frequency	Valid			
	<0.3	0.7 > 0.3	>0.7	Total
Frequency	1	15	4	20
Percent	5.0	75.0	20.0	100.0
Valid Percent	5.0	75.0	20.0	100.0
Cumulative Percent	5.0	80.0	100.0	

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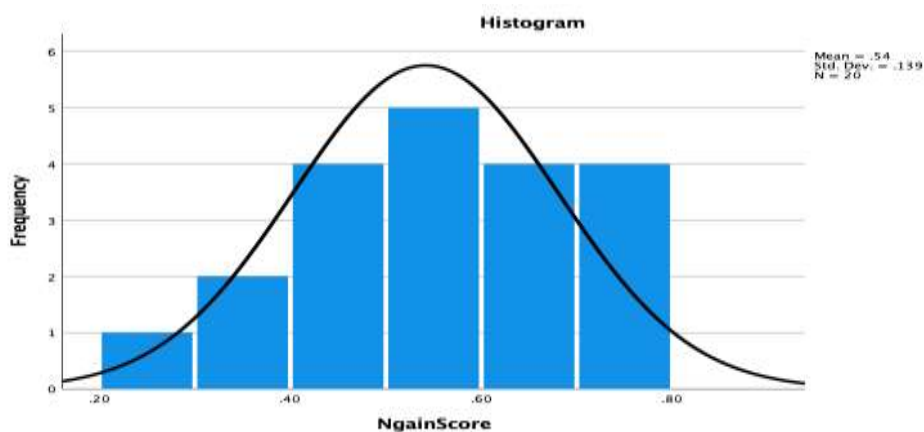


Figure 2. Histogram N gain score

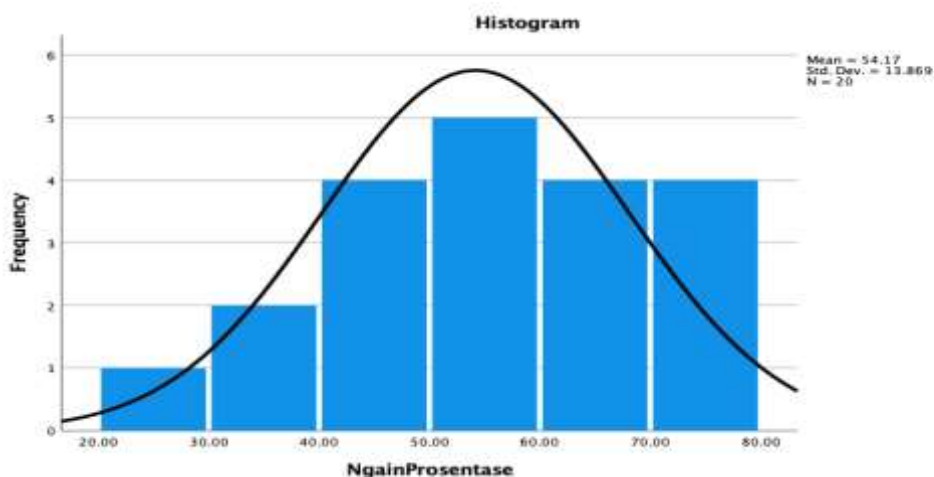


Figure 3. N gain prosentase

Participants in the implementation of cross-training become more open and work together with their colleagues. They support each other and jointly solve problems. The dissemination of the results of the training by cross-training is evenly distributed in each organization. During the implementation of training with cross-training, the relationships between participants in group work complement each other and can adapt. The flexibility factor in implementation makes participants able to place their positions and carry out all activities to achieve goals (Slomp & Molleman, 2002). Cross-training has a direct impact on providing knowledge of the importance of working in teams, improving team performance related to tasks, and effective coordination (Cannon-Bowers, Salas, & Blickensderfer, 1998).

The implementation of cross-training influences the knowledge process, expanding employee knowledge and competencies (Stanica & Peydro, 2016). In working in groups or teams, participants impart their knowledge to other participants and also to their colleagues at work. Research from Marks, Sabella, Burke, & Zaccaro (2002) shows cross-training participants interact more with other participants with more than two interaction models. This shows that cross-training can involve participants actively and share their knowledge with other participants and support each other. The effectiveness of this method is influenced by the flexibility in its implementation, where participants can do various jobs where work so that it can help reduce boredom (Morina, 2021). Participants during the cross-training process depend on each other in completing training material and learn from each other between participants (Hedges, et al., 2019).

Cross-training participants in implementation experienced an increase in productivity related to the tasks to be completed (Ninan, Roy, & Thomas, 2019). The process of support in training with mutual learning between participants and flexibility in implementation helps participants to complete tasks carried out collaboratively. The relationship between the participants during the training becomes more intimate and eliminates the gap that exists between the participants and the instructor or trainer. Participants can convey the results of the training to colleagues where they work, and discuss related to improving assignments. This activity has an impact on the establishment of solid teamwork it has an impact on organizational progress. Cross-training is effective for increasing performance in a group environment, participants increase knowledge by practicing and working in a team environment (Vasanthi & Basariya, 2018).

Participants in cross-training study the details of the tasks or stages of work in detail regarding procedures, required documents, and materials needed, so that they will clearly understand their tasks independently (Weiss, 2005). The effectiveness

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of increased participant productivity results in the intensification of work and a superior workload. Participants who have participated in cross-training have been equipped with the ability to work in teams that achieve the expected goals (Slomp & Molleman, 2002). Cross-training can activate communication which helps in doing tasks better, speeds up task completion, and has an impact on increasing motivation (Hopp & Oyen, 2004).

### IV. CONCLUSION

Cross-training in this study shows that it is quite effective in increasing teacher competency in learning design. Effectiveness in implementation, namely participants working in teams, exchanging knowledge, and increasing communication with colleagues. Participants can carry out various tasks and share them with friends in the same organization so that there is no distance and have the same knowledge. In practice, cross-training does not interfere with the participants' work, on the contrary, it supports their work personally and has an impact on the organization and colleagues. Participants pass on their knowledge to colleagues.

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