

# Dual Education System (PSG) Effectiveness to Improving SMK Graduates Quality

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**Abstract:** *PSG approach which combines learning implementation in the school and prakerin between school and partner institutions to produce capable graduates. Central issue in this study, how PSG implemented in order to capable manpower relevant with community needs. Study hypothesis in this research include, first, Learning Motivation, teacher competence, learning facilities directly and does not affect to PSG program implementation effectiveness. Second, Learning Motivation, teacher competence, learning facilities, PSG program implementation effectiveness directly indirectly affect to SMK graduates employability. In line with proposed study hypothesis, used survey method exploratory research, so that can describe causality (cause and effect) between studied variables Learning motivation, teacher competency and facility are jointly significant effect to PSG Program Learning Effectiveness process. PSG Program Learning Effectiveness can produce graduates SMK capable relevant to community needs, especially work institutions.*

**Keywords:** PSG, learning motivation, SMK prakerin.

## 1. Introduction

PSG approach which combines learning implementation in the school and prakerin in the partner institutions is an learning implementation alternative at SMK. IP involvement directly and actively in learning process expected to be a breakthrough in produce capable graduates (manpower). Central issue in this study, how PSG implemented in order to capable manpower relevant with community needs.

There are three learning components were identified, among other students, teachers, and learning resources. Thus, problem formulated namely whether PSG program implementation effectiveness to produce a quality SMK graduates. This study aimed to obtain information PSG program learning implementation which effective in producing SMK graduates who capable relevant to community needs, especially work institutions.

Theoretically, information would be useful for efforts learning quality improvement and practically expected to be a solution alternative learning implementation at SMK to produce graduates who are capable in accordance with community expectations.

## 2. Literature

Behaviorism learning theory that explain, learning is change behavior based on Stimulus-Response (SR) paradigm it is a research grand theory, which "changes experienced by student in ability to behave with new way as interaction result between stimulus and response" (Prasetya Irawan, et al., 1997: 2).

PSG pattern learning is middle range theory, which "organization form of vocational education that combines systematic and synchronous education program at vocational high schools with skill mastery program gained through working directly on real work at partner institutions, directed to achieve professional expertise certain level" (Kepmendikbud RI. No. 323/U/1997; About Operation PSG at SMK; Pasal 1, ayat 1). Applied theory refers to Loree model (1970), Dunkin and Biddle (2007), and Undang-Undang RI No. 20 Year 2003 about SISDIKNAS (Pasal 1

Ayat 20), that learning influenced by three components, namely: student, teacher and learning facilities. These three contribution can determine effectiveness of learning object achievement at SMK, organized as behavior changes/work ability SMK graduate as learning outcomes. Work ability was measured by observed to student respons with stimuli it receives (Slavin; 2000).

Theory discussion include: (1) dual education system which is "organization form of vocational education that combines systematic and synchronous education program at vocational high schools with skill mastery program gained through working directly on real work at partner institutions, directed to achieve professional expertise certain level" (Kepmendikbud RI. No. 323/U/1997; About Operation PSG at SMK; Pasal 1, ayat 1). (2) Motivation, Keller (1983) preparing ARCS models, namely motivation principles in learning process; "attention, relevance, confidence and satisfaction". (3) Teacher competency include: "pedagogic competence, personal competence, social competence, and professional competence acquired through professional education" (Undang-Undang RI No. 14 Year 2005; about Teacher and Lecturer; pasal 16), also explained "Teachers are professional educator with the primary task of educating, teaching, guiding, directing, training, assessing and evaluating student on early childhood education, formal education, elementary education, and secondary education" (pasal 1, ayat 1). (4) PSG program learning facilities that is "Equipment and materials used for basic practice implementation and industry practices/expertise which are based on joint program between school with industry". (5) PSG program learning effectiveness, namely "PSG development done through improvement, broadening, deepening, and PSG adjustment to science and technology development, with employment development" (Kepmendikbud RI No. 323/U/1997; about PSG Implementation at SMK; pasal 31, ayat 1). (6) SMK graduates employability is "graduate capabilities qualification that include attitudes, knowledge and skills" (General Provisions Government RI Regulation No. 19 Year 2005; About Education National Standard pasal 1, ayat 4). Relevance with community needs, determined by human existence strategic factors as civilized, dignified and noble

behavior (Fakry Mohammad Gaffar, 2007, 10). Employability parameter SMK graduate seen from national exam (UN) value competence subject.

Study hypothesis include, first, Learning Motivation, teacher competence, learning facilities directly and does not affect to PSG program implementation effectiveness. Second, Learning Motivation, teacher competence, learning facilities, PSG program implementation effectiveness directly indirectly affect to SMK graduates employability.

### 3. Method

In line with proposed study hypothesis, used survey method exploratory research, so that can describe causality (cause and effect) between studied variables (Aaker, 2004:75; Churchill and Lacobucci, 2005:74; Cooper and Schindler, 2008: 20). Descriptive analysis used to describe studied variables characteristics, verification analyzes to est research hypothesis with descriptive statistical assistance and SEM model statistical (structural equation model).

Study variables operationalization (interval scale): Learning Motivation Variables (X1) dimension include: attention, relevance, confidence, satisfaction; Teacher Competency Variable (X2) competency dimension include: pedagogical, professional, personal, social. Learning Facility Variable (X3) dimension include: equipment management and practice material at SMK, equipment management and practice material at IP, facility requirements analysis, facilities suitability and practice material. PSG Program Learning Effectiveness Variable (Y1) dimension include: meaningful, integrated, value-based, challenging, active. SMK Graduates Work Ability variable (Y2) consists of dimension: social, cultural, academic, personality, professional.

### 4. Result and Discussion

Processing data using descriptive statistics, provided  $r=5.00-1.00$ ,  $k=5$ ,  $p=0.8$ , are presented:

*Average Achievement Table, Percentage and Dimension Each Category Learning Motivation Variable*

Dimension	Average	Percentage	Category
Attention	3.670	73.39	high
Relevance	3.726	74.53	high
Confidence	3.729	74.59	high
Satisfaction	3.804	76.08	high
Learning Motivation (X1)	3.732	74.65	high

Source: Data Processing (2012)

*Average Achievement Table, Percentage and Dimension Each Category Teacher Competency Variable*

Dimension	Average	Percentage	Category
Pedagogical	3.818	76.35	high
Professional	3.708	74.17	high
Personal	3.855	77.09	high
Social	3.800	76.00	high
Teacher Competency (X2)	3.795	75.90	high

Source: Data Processing (2012)

*Average Achievement Table, Percentage and Dimension Each Category Learning Facility Variable*

Dimension	Average	Percentage	Category
School management	3.645	72.89	high
IP management	3.747	74.94	high
Need Analysis	3.706	74.12	high
Suitability	3.704	74.08	high
Learning Facility (X3)	3.700	74.01	high

Source: Data Processing (2012)

*Average Achievement Table, Percentage and Dimension Each Category PSG Program Learning Effectiveness Variable*

Dimension	Average	Percentage	Category
Meaningful	3.735	74.71	high
Integrated	3.684	73.68	high
Value-Based	3.774	75.48	high
Challenging	3.739	74.79	high
Active	3.819	76.39	high
PSG Program Learning Effectiveness (Y1)	3.750	75.01	high

Source: Data Processing (2012)

*Average Achievement Table, Percentage and Dimension Each Category SMK Graduates Work Ability Variable*

Dimension	Average	Percentage	Category
Socio-Cultural	3.816	3.816	high
Academic	3.727	3.727	high
Personality	3.800	3.800	high
Professional	3.750	3.750	high
SMK Graduates Work Ability (Y2)	3.773	75.46	high

Source: Data Processing (2012)

*Dimensional relationships with Learning Motivation*

Dimension	Variable			Information
	r	r <sup>2</sup>	e	
Attention	0.8016	0.6426	0.3574	significant
Relevance	0.8038	0.6461	0.3539	significant
Confidence	0.8009	0.6414	0.3586	significant
Satisfaction	0.8142	0.6629	0.3371	significant
Construct Reliability Coefficient		0.8055		reliable

Source: Data Processing (2012)

Analysis results are significant/meaningful able to reflect Learning Motivation variable. Fourth dimension can explain Learning Motivation variable amounted to 80.55%. Construct reliability values > 0.7 indicate each dimension size function properly. Satisfaction dimension relatively dominant to reflect/form of Learning Motivation.

*Dimensional relationships with Teacher Competency*

Dimension	Variable			Information
	r	r <sup>2</sup>	e	
Pedagogical	0.8492	0.7211	0.2789	significant
Professional	0.7564	0.5721	0.4279	significant
Personal	0.8201	0.6726	0.3274	significant
Social	0.8889	0.7901	0.2099	significant
Construct Reliability Coefficient		0.8983		reliable

Source: Data Processing (2012)

Analysis results significantly able to reflect teacher competence variables. Fourth dimension can explain teacher competence variable amounted to 89.83%. Construct reliability values > 0.7 indicate each dimension size function properly. Social dimension relatively dominant to reflect teacher competence.

*Dimensional relationships with Learning Facility Variable*

Dimension	r	r <sup>2</sup>	e	Information
IP management	0.7514	0.5646	0.4354	significant
Need Analysis	0.7779	0.6051	0.3949	significant
Suitability	0.8117	0.6589	0.3411	significant
Construct Reliability Coefficient		0.8640		reliable

Source: Data Processing (2012)

Analysis results significantly able to reflect learning facility variable. Fourth dimension can explain the variabel amounted to 86.40%. Construct reliability values > 0.7 indicate each dimension size function properly. Suitability dimension relatively dominant to reflect learning facility.

*Dimensional relationships with PSG Program Learning*

*Effectiveness Variable*

Dimension	r	r <sup>2</sup>	e	Information
Integrated	0.7599	0.5774	0.4226	significant
Value-Based	0.7930	0.6288	0.3712	significant
Challenging	0.7834	0.6137	0.3863	significant
Active	0.7126	0.5078	0.4922	significant
Construct Reliability Coefficient		0.8652		reliable

Source: Data Processing (2012)

Analysis results able to reflect PSG Program Learning Effectiveness variable. Fifth dimension can explain the variable amounted to 86,52 %. Construct reliability values > 0.7 indicate each dimension size function properly. Value based dimension is relatively dominant to reflect PSG Program Learning Effectiveness.

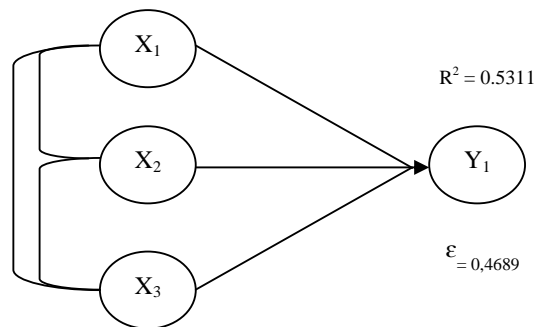
*Dimensional relationships with SMK Graduates Work Ability Variable*

Dimension	r	r <sup>2</sup>	e	Information
Academic	0.7494	0.5616	0.4384	significant
Personality	0.7244	0.5248	0.4752	significant
Professional	0.7650	0.5852	0.4148	significant
Construct Reliability Coefficient		0.8215		reliable

Source: Data Processing (2012)

Analysis results significantly able to reflect SMK Graduates Work Ability variable. Fourth dimension can explain the variabel amounted to 86.52%. Construct reliability values > 0.7 indicate each dimension size function properly. Professional dimension relatively dominant to reflect SMK Graduates Work Ability.

Hypothesis testing with AMOS program spawned structural models:



Structural Models Influence Learning Motivation, Teacher Competency and Learning Facility to PSG Program Learning Effectiveness

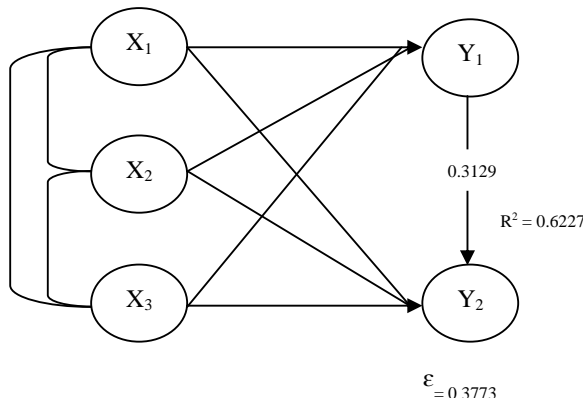
Information : X<sub>1</sub> = Learning Motivation  
 X<sub>2</sub> = Teacher Competency and Instructor  
 X<sub>3</sub> = Learning Facility  
 Y<sub>1</sub> = PSG Program Learning Effectiveness

Formula : Y<sub>1</sub> = X<sub>1</sub> + 0.3712 X<sub>2</sub> + 0.4021 X<sub>3</sub> 0.4813 with

$$R_2 = 0.5311$$

Determination coefficient value  $R_2 = 0.5311$  indicates, jointly Learning Motivation, Teacher Competency and Learning Facility significantly affect to PSG Program Learning Effectiveness. PSG Program Learning Effectiveness variable at state and private in Bandung can be explained by Learning Motivation, Teacher Competencies and Learning Facility at 53.11%. A percentage of 46.89% determined by other variables on the outside model.

Hypothesis testing with AMOS program spawned structural models:



Structural Models Influence Learning Motivation, Teacher Competency, Learning Facility and PSG Program Learning Effectiveness to SMK Graduates Work Ability

Information :  $X_1$  = Learning Motivation  
 $X_2$  = Teacher Competency and Instructor  
 $X_3$  = Learning Facility  
 $Y_1$  = PSG Program Learning Effectiveness  
 $Y_2$  = Graduates Work Ability

Formula :  $Y_1 = 0.3625 X_1 + 0.3128 X_2 + 0.2389 X_3 + 0.3129$   
 with  $R_2 = 0,6227$

Determination coefficient value  $R_2 = 0,6227$  indicates, jointly Learning Motivation, Teacher Competency, Learning Facility, and PSG Program Learning Effectiveness significantly affect to SMK Graduates Work Ability amounted to 0.6227. State and private SMK Graduates Work Ability variable at Bandung can be explained by Learning Motivation, Teacher Competencies, Learning Facility and PSG Program Learning Effectiveness at 62.27%. A percentage of 37.73% determined by other variables on the outside model.

Influence of Learning Motivation, Teacher Competency, Learning Facility and PSG Program Learning Effectiveness variables to SMK Graduates Work Ability were tested by F test or T test shows  $p\text{-value} \leq 0.050$ , meaning Learning Motivation, Teacher Competency, Learning Facility and PSG Program Learning Effectiveness direct and indirect significant effect to SMK Graduates Work Ability. It means research hypothesis can be accepted.

Respectively: (1) attention, relevance, confidence, satisfaction dimensions, significantly able to reflect Learning Motivation variable; (2) competencies dimension of pedagogical, professional, personal, social competence,

significantly can reflect Teacher Competency variables, (3) school facilities management, partner institution facilities management, need analysis and suitability dimensions, significantly reflect can PSG Program Learning Facility variable; (4) meaningful, integrated, value-based, challenging and active dimensions, significantly able to reflect and PSG Program Learning Effectiveness.

Variables that most influence PSG Program Learning Effectiveness is teacher competency (89.83%). This result consistent with teacher role as well as implementing change all at once implementing learning at grade level, be a key element successful learning implementation at SMK. Overall, variable; Learning Motivation ( $X_1$ ), Teacher Competency ( $X_2$ ), Learning Facility ( $X_3$ ), and PSG Program Learning Effectiveness ( $Y_1$ ) significantly affect to SMK Graduates Work Ability ( $Y_2$ ), amounted to 62.27%. Learning Motivation that most contributes variable to SMK Graduates Work Ability (0.3625). This suggest that student learning success greatly influenced by motivation.

Calculations show, direct influence of each variable ( $X_1$ ,  $X_2$ , and  $X_3$ ) to SMK Graduates Work Ability ( $Y_2$ ) greater than indirect effect (through  $Y_1$ ). Calculation results indicate that student success in achieving a goal can motivate to be more active and creative to learn. Learning Motivation ( $X_1$ ), Teacher Competency ( $X_2$ ) and facilities variables ( $X_3$ ), not only important variable to improving PSG Program Learning Effectiveness but also indirectly an important variable that affect SMK Graduates Work Ability.

Research findings shows that teacher/instructor competency greatly influence learning motivation and use learning facility, learning motivation greatly affect SMK Graduates Work Ability too.

## 5. Conclusion and Recommendation

Learning motivation, teacher competency and facility are jointly significant effect to PSG Program Learning Effectiveness process. The results showed three are determinant PSG Program Learning Effectiveness. Teacher competency relatively dominant variable affecting PSG Program Learning Effectiveness. Seen from each dimensions: learning motivation, teacher competency and facility significant effect to PSG Program Learning Effectiveness implementation.

Learning motivation, teacher competency, facility and learning process effectiveness significant effect either directly or indirectly to SMK Graduates Work Ability. Direct effect of exogenous variables greater than indirect effect to endogenous variable. Learning motivation variable relatively dominant effect to SMK Graduates Work Ability. Seen from each dimensions: learning motivation, teacher competency, facility and Learning Effectiveness directly and indirectly affect to SMK Graduates Work Ability. PSG Program Learning Effectiveness significant direct effect to SMK Graduates Work Ability. PSG Program Learning Effectiveness can produce graduates SMK capable relevant to community needs, especially work institutions.

Student attention and confidence dimensions requires

teacher effort in learning service development are different, contradictory, complex. Use methods variation, media, interspersed with humor, examples, variations ask. Adaptive learning plans, easily understood, parse content and objectives, weaknesses to be addressed. Professional competency dimension requires teacher competency development in material mastery, learning equipment, learning resources and information technology application. Facilities management dimension requires improved use standard management, storage, need analysis. Integrated dimension, demanded teacher as student motivator, developing learning facility, learning service and prakerin synchronization. Socio-cultural dimension requires learning object development thus reflecting SMK graduate figure who understand socio-cultural life, relationship with others importance, understand value and norm, as well as understand life aspect changing.

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