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:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Average</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>3.670</td>
<td>73.39</td>
<td>high</td>
</tr>
<tr>
<td>Relevance</td>
<td>3.726</td>
<td>74.53</td>
<td>high</td>
</tr>
<tr>
<td>Confidence</td>
<td>3.729</td>
<td>74.59</td>
<td>high</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>3.804</td>
<td>76.08</td>
<td>high</td>
</tr>
<tr>
<td>Learning Motivation (X1)</td>
<td>3.732</td>
<td>74.65</td>
<td>high</td>
</tr>
</tbody>
</table>

Source: Data Processing (2012)
Dimensional relationships with Learning Motivation Variable

<table>
<thead>
<tr>
<th>Dimension</th>
<th>r</th>
<th>r²</th>
<th>e</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>0.8016</td>
<td>0.6426</td>
<td>0.3574</td>
<td>significant</td>
</tr>
<tr>
<td>Relevance</td>
<td>0.8038</td>
<td>0.6461</td>
<td>0.3539</td>
<td>significant</td>
</tr>
<tr>
<td>Confidence</td>
<td>0.8009</td>
<td>0.6414</td>
<td>0.3586</td>
<td>significant</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>0.8142</td>
<td>0.6629</td>
<td>0.3371</td>
<td>significant</td>
</tr>
</tbody>
</table>

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 Variable

<table>
<thead>
<tr>
<th>Dimension</th>
<th>r</th>
<th>r²</th>
<th>e</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical</td>
<td>0.8492</td>
<td>0.7211</td>
<td>0.2789</td>
<td>significant</td>
</tr>
<tr>
<td>Professional</td>
<td>0.7564</td>
<td>0.5721</td>
<td>0.4279</td>
<td>significant</td>
</tr>
<tr>
<td>Personal</td>
<td>0.8201</td>
<td>0.6726</td>
<td>0.3274</td>
<td>significant</td>
</tr>
<tr>
<td>Social</td>
<td>0.8889</td>
<td>0.7901</td>
<td>0.2099</td>
<td>significant</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Dimension</th>
<th>r</th>
<th>r²</th>
<th>e</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>School management</td>
<td>0.7916</td>
<td>0.6266</td>
<td>0.3734</td>
<td>significant</td>
</tr>
<tr>
<td>IP management</td>
<td>0.7514</td>
<td>0.5646</td>
<td>0.4354</td>
<td>significant</td>
</tr>
<tr>
<td>Need Analysis</td>
<td>0.7779</td>
<td>0.6051</td>
<td>0.3949</td>
<td>significant</td>
</tr>
<tr>
<td>Suitability</td>
<td>0.8117</td>
<td>0.6589</td>
<td>0.3411</td>
<td>significant</td>
</tr>
</tbody>
</table>

Construct Reliability Coefficient: 0.8640 reliable

Source: Data Processing (2012)

Analysis results significantly able to reflect learning facility variable. Fourth dimension can explain the variable 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

<table>
<thead>
<tr>
<th>Dimension</th>
<th>r</th>
<th>r²</th>
<th>e</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaningful</td>
<td>0.6972</td>
<td>0.4861</td>
<td>0.5139</td>
<td>significant</td>
</tr>
<tr>
<td>Integrated</td>
<td>0.7599</td>
<td>0.5774</td>
<td>0.4226</td>
<td>significant</td>
</tr>
<tr>
<td>Value-Based</td>
<td>0.7930</td>
<td>0.6288</td>
<td>0.3712</td>
<td>significant</td>
</tr>
<tr>
<td>Challenging</td>
<td>0.7834</td>
<td>0.6137</td>
<td>0.3863</td>
<td>significant</td>
</tr>
<tr>
<td>Active</td>
<td>0.7126</td>
<td>0.5078</td>
<td>0.4922</td>
<td>significant</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Dimension</th>
<th>r</th>
<th>r²</th>
<th>e</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-Cultural</td>
<td>0.6858</td>
<td>0.4703</td>
<td>0.5297</td>
<td>significant</td>
</tr>
<tr>
<td>Academic</td>
<td>0.7494</td>
<td>0.5616</td>
<td>0.4384</td>
<td>significant</td>
</tr>
<tr>
<td>Personality</td>
<td>0.7244</td>
<td>0.5248</td>
<td>0.4752</td>
<td>significant</td>
</tr>
<tr>
<td>Professional</td>
<td>0.7650</td>
<td>0.5852</td>
<td>0.4148</td>
<td>significant</td>
</tr>
</tbody>
</table>

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 variable 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:

\[
Y_1 = X_1 + 0.3712 X_2 + 0.4021 X_3 + 0.4813 \\
\alpha = 0.4689 \\
R^2 = 0.5311
\]

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

Information: \(X_1 = \text{Learning Motivation}\) \(X_2 = \text{Teacher Competency and Instructor}\) \(X_3 = \text{Learning Facility}\) \(Y_1 = \text{PSG Program Learning Effectiveness}\)

Formula: \(Y_1 = X_1 + 0.3712 X_2 + 0.4021 X_3 + 0.4813\) 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:

\[ R^{2} = 0.6227 \]

\[ R^{2} = 0.3773 \]

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  
Y_{2} = Graduates Work Ability

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 62.27%. 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-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 is 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 (X1), Teacher Competency (X2), Learning Facility (X3), and PSG Program Learning Effectiveness (Y1) significantly affect to SMK Graduates Work Ability (Y2), 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 (X1, X2, and X3) to SMK Graduates Work Ability (Y2) greater than indirect effect (through Y1). Calculation results indicate that student success in achieving a goal can motivate to be more active and creative to learn. Learning Motivation (X1), Teacher Competency (X2) and facilities variables (X3), 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.

References


Author Profile

Ahim Surachim received an Education Postgraduate degree from Indonesia University of Education 1997. He received a Science Postgraduate degree from Padjadjaran University Bandung 2004 and he received education degree from Indonesia University of Education in 1987. He is a Lecturer at Business and Management Programme Indonesia University of Education from 1988 until now.