

Contents and Proportions of Assignments in Primary, Secondary, Vocational, and Higher Education

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This study aimed to determine the content and proportion of assignments at the elementary, secondary, vocational, and higher education levels. The research samples were 53 educational experts from UM, UNESA, UNNES, and UNY Indonesia. This research collected the data using a questionnaire and analysed them using descriptive statistics and Chi-square. The results showed that (1) the content of the assignments at the elementary level was repetitive, at junior high was variation, at high school and vocational school were product planning, at bachelor degree was analysis and inference, at master degree was development, and a doctoral degree was discovery and publication; (2) the proportion of assignment to exam in elementary school was 27% to 73%, in junior high was 37.25% to 62.75%, in high school was 45% to 55%, in vocational school was 62.30% to 37.70%, in bachelor's degree was 54.20% to 45.80%, in master's degree was 65.00% to 35.00%, and in doctoral degree was 76.00% to 24.00%; (3) the higher the level of education, the greater the assessment in the form of assignments were; and (4) assessment in vocational school was based more on assignments.

Keywords: *assignment, education level*

1 Introduction

The use of appropriate assessment techniques not only demonstrates mastery of skills but also increases students' learning motivation. Following the Minister of Education and Culture Regulation [1] and the Minister of Research, Technology, and Higher Education Regulation [2], the assessment of learning outcomes use a variety of techniques: examinations and assignments. Vocational schools, in particular, use assignment assessments. However, assessment through assignments have various qualities and quantities, in the content's depth and the exam proportion, and occur in every level of education, including vocational education.

There are three possible reasons to choose an assignment assessment: to achieve a higher level of thinking, to obtain better physical skills, and to be more contextual with the handled-work. It is possible to achieve higher levels of thinking through assignments. The results showed that assessment through assignment had significantly better levels of thinking ($p = 0.00$) compared to the written examinations [3, 4]. The psychometric study results showed that higher-order thinking skills were measured more precisely through assignments [5]. The role of the assignment was so significant in improving thinking skills that the National Accreditation Board determined the proportion of tasks to examinations at a minimum of 20% and declared 'good' if it had reached ³ 50% [6]. Therefore, assignments helped achieve a higher level of thinking.

Through physical assignments, students will be more skilled in carrying out the activity procedures. Practices help the students to be less awkward in carrying the work. Likewise, through assignment assessment, the activities will be in context with the work in the community later. Contextual learning is more beneficial for students because assessment materials are more in line with the job in real-world [7, 8]. Therefore, the assignment will give more meaning to the learning outcomes.

Differences in educational level require a stratified depth of material and learning assignment according to the level of thinking. This statement refers to several research results that stated that there is a long-standing relationship between attending education and cognitive skills; which means, longer education time provides higher cognitive abilities [9]. The increase in

cognitive development is in line with an increase in education level [10]. Learning experiences at school can improve cognitive abilities [11]. Each participation in the higher education level generates an increase in intelligence [12, 13]. Therefore, material depth and assignment learning should follow the rise in education level. This paper aimed to determine the content and proportion of tasks based on education and vocational education levels.

2. Methodology

This study used the ex-post-facto approach. The respondents were educational experts with experience in using Bloom's taxonomies. The research data were the experts' responses to the content's appropriateness and the assignments' proportion in primary, secondary, vocational, and tertiary education levels in Indonesia.

The research sample were lecturers from the *Institute of Education and Education Personnel/IEEP*, e.g. State University of Malang (UM), Surabaya State University (UNESA), Semarang State University (UNNES), and Yogyakarta State University (UNY), totaling 53 people. The method of sampling was purposive. The samples had a 51% master education, 40% doctorate education, and 9% professor education. The data were collected using questionnaires and analysed using percentage statistics, diagrams, and chi-square.

3. Results and Discussion

3.1 Assessment Content

The results showed that the most selected assignment content to be applied in (1) Elementary School (ES) is repetitive tasks (72%) followed by various assignments based on the discussed materials (28%); (2) in Junior High School (JHS) is the variation of assignments based on the discussed content (84%), repetition of the completed material (8%), and product planning tasks (8%); (3) in Senior High School (SHS) and Vocational High School (VHS) are product planning tasks (42%), the variation of assignments based on the discussed material (32%), and analytical paper assignment with conclusion (26%), (4) in Bachelor Degree (BD) is analytical paper assignment with completion (62%), the paper development tasks (16%), product planning papers (14%), and research (8%); (5) in Master Degree (MD) is the paper development tasks (48%), research assignments (34%), scientific publications assignments

(14%), and analytical paper assignment with conclusion (4%); and (6) in Doctoral Degree (DD) is the task of scientific publication (46%), research assignment (32%), patent assignment (18%), and development papers (4%). Table 1 shows the total content contribution based on the educational level.

Table 1. The proportion of Assignment Content Based on Educational Level

The Content of Assignments	ES	JHS	SHS/ VHS	BD	MD	DD
Learning material repetition	72%	8%	-	-	-	-
Variation of material	28%	84%	32%	-	-	-
Product planning	-	8%	42%	14%	-	-
Analytical paper	-	-	26%	62%	4%	-
Paper development	-	-	-	16%	48%	4%
Research and discovery	-	-	-	8%	34%	32%
Scientific publications	-	-	-	-	14%	46%
Patent	-	-	-	-	-	18%
Total (%)	100%	100%	100%	100%	100%	100%

These results indicated that higher levels of education required heavier, more profound, and critical thinking assignments; in line with the previous research that argued that the longer the education, the higher the cognitive skills are [9]; cognitive development is directly proportionate with the increasing levels of education [10]; and learning experiences in schools can improve cognitive abilities [11].

The results of this study also showed that the most appropriate task for Elementary School education is the repetition of the material, for Junior High School education is the task of completing the variation of assignments based on the discussed content, for Senior High School and Vocational High School education is the product planning task, for Bachelor Degree level is the analytical papers, for Master Degree education is developing the articles, and for Doctoral Degree education level is the task of scientific publications. Figure 1 presents the task suitability on each level of education.

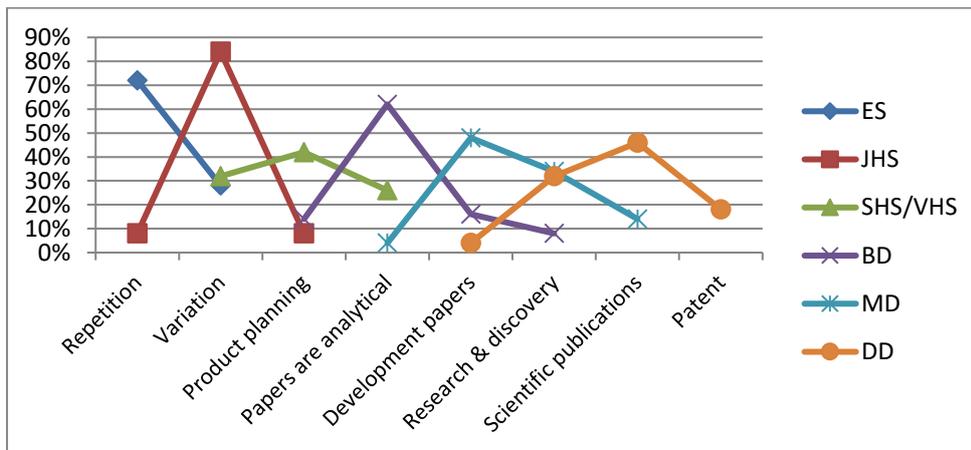


Figure 1. Assignment Content at the Educational Level

The Chi-square analysis results on the suitability differences of assignment contents in each level of education showed the price $X^2 = 752.80$, with $p = 0.00 < 0.05$ significance. These results indicated that there were significant differences in the assignment contents in each level of education, in which the higher level of education created more assignments with a higher level of thinking. These results were in line with previous studies that declared that the longer the education, the more intelligence is provided [12, 13].

3.2 Task Proportion

When looking at the assignment proportion, the analysis results showed that, in general, higher levels of education equal greater excellence in assessment conducted through the assignment. The highest percentage for evaluation through assignment is at the level of doctoral education, and the smallest portion of assessment through assignment is at the Elementary School. Meanwhile, the most significant portion of assessment through exams is in the Elementary School, while the smallest percentage of assessment through reviews is at the doctoral degree level. Table 2 displays the proportion of assignments and examinations at the educational level.

Table 2. The proportion of Assignments and Examinations at Educational Level

Education Level	Assignment	Exam
Elementary School (ES)	27.00%	73.00%
Junior High School (JHS)	37.25%	62.75%
Senior High School (SHS)	45.00%	55.00%
Vocational High School (VHS)	62.30%	37.70%
Bachelor Degree (BD)	54.20%	45.80%
Master Degree (MD)	65.00%	35.00%
Doctoral Degree (DD)	76.00%	24.00%

Figure 2 presents the comparison graph of assessments through assignments and exams. Two polygon lines intersect in the middle that shows that the proportion of assessments through examinations and assignments at the secondary education level is almost the same, and different based on the educational level. The lower education level prefers more assessment through exams, while higher education prefers the opposite, or mostly done through assignments. This decision is due to the different level of thinking in various levels of education.

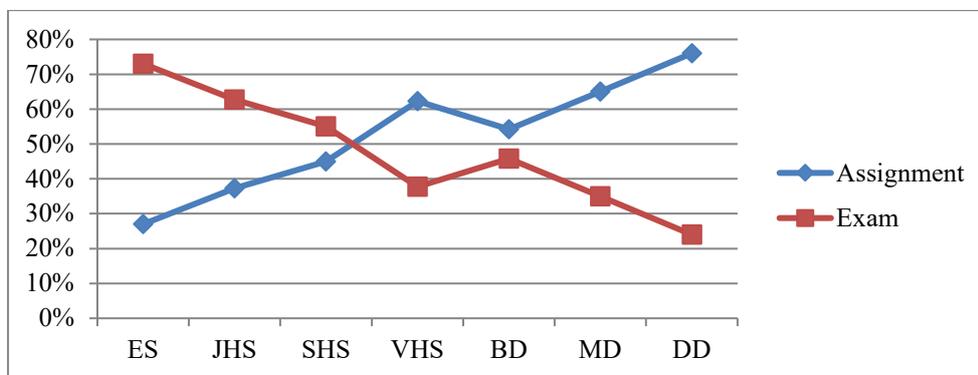


Figure 2. The proportion of Assignments and Examinations at the Educational Level

Lower education levels with lower levels of thinking requires most assessment through exams. The secondary education level requires a moderate level of thinking so that the proportion of assessment through examinations and assignments is in balance.

On the other hand, higher education means a higher level of thinking, so most of the assessment is done through assignments. This result is following previous research that the assessment

through assignment can significantly increase the level of thinking significantly ($p = 0.00$) than the test [3, 4]. Similarly, tasks precisely measure higher-order thinking skills [5].

The proportion of assignments at the Vocational High School (VSH) level is more significant than that of Senior High School (SHS) because Vocational High School demands more critical physical skills. Assessment in the form of assignments at Vocational High School is more appropriate with the work in the field, and the evaluation is more in line with real-world conditions [7, 8].

4. Conclusion

The conclusions based on the results and discussion were as follows. First, the higher the level of education, the more profound and more complex assignments are needed. The assignment contents at the Elementary School level were material repetition, the Junior High School needed variation of assignments based on the discussed material, the Senior High School and Vocational High School levels were product planning, the Bachelor Degree was analysis and conclusion papers, the Master degree is further development of the papers, and the Doctoral Degree was a publication. Second, the higher level of education required more significant the proportion of assignment assessments. The comparison of assignments and examinations at Elementary School was 27% to 73%, Junior High School was 37.25% to 62.75%, Senior High School was 45% with 55%, Vocational High School was 62.30% to 37.70%, Bachelor Degree was 54.20% to 45.80%, the Master Degree level was 65.00% to 35.00%, and the Doctoral Degree level was 76.00% to 24.00%. Third, there was a significant difference in the level of education involving the proportion and depth of assignments. The higher the level of education means more assessments through assignments in total. Fourth, assessments of vocational training aimed at the use of equipment and based more on assignments than examinations.

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