

MAPPING STUDENT'S UNDERSTANDING OF BASIC ACCOUNTING CONCEPT THROUGH ASSESSMENTS DIAGNOSTICS

Nyoman Trisna Herawati

Faculty of Economics, Universitas Pendidikan Ganesha, Indonesia
(trisnaherawati@undiksha.ac.id)

Made Ary Meitriana

Faculty of Economics, Universitas Pendidikan Ganesha, Indonesia
(ary.meitriana@undiksha.ac.id)

Made Anintia Trisna Dewi

Faculty of Economics, Universitas Pendidikan Ganesha, Indonesia
(nsari@undiksha.ac.id)

ABSTRACT

Assessment is an important component in the implementation of education, one of which is diagnostic assessment. Diagnostic assessment aims to understand students' initial abilities, so that teachers can design learning methods and media that suit students' abilities. However, the use of diagnostic assessments in mapping the understanding of basic accounting concepts is still very rare. For this reason, this study aims to analyze how diagnostic assessments are given to map students' understanding of concepts. The novelty of this research lies in the use of diagnostic assessments in learning, especially in basic financial accounting materials. The research method used is descriptive which is sourced from the analysis of the results of diagnostic assessment test scores given to 2nd semester students who took the Intermediate Financial Accounting course as many as 48 students. The test scores are then categorized into 3 categories, namely (1) very understanding if the score is ≥ 85 , (2) understanding enough if the score is 70 to 84, and (3) not understanding if the score obtained is ≤ 69 . The mapping of basic accounting concepts in this diagnostic assessment is divided into 7 concept maps, namely (1) Definition of Accounting, (2) Basic Equations of Accounting, (3) Account Concepts, (4) Make the journal entries and posting in ledger, (5) Make the trial balance and adjusting entries, (6) Prepare the financial statement, and (7) Completing accounting cycle by closing entries. The results of the study show that diagnostic assessment can map the understanding of basic accounting concepts in accounting students into 7 concept maps. The average of each concept is as follows: concept 1 is 77, concept 2 is 68, concept 3 is 86, concept 4 is 83, concept 5 is 63, concept 6 is 81, concept 7 is 86. On average, concept 2 is related to the basic accounting equation and concept 5 is the adjustment to obtain the lowest average result compared to other concepts. Furthermore, students' understanding of each concept is analyzed which can then be given a reward for concepts that are still lacking. Based on this, it can be concluded that with a diagnostic assessment of basic accounting concepts, both lecturers and students can find out the weaknesses in each concept. With this mapping, lecturers can design learning strategies that suit the needs of students.

Keywords: mapping concept, assessment diagnostics, basic accounting

INTRODUCTION

Assessment or assessment is an important component in the implementation of education. Efforts to improve the quality of education can be pursued through improving the quality of learning and the quality of the assessment system. A good learning system will improve the quality of learning and the quality of this learning can be seen from the results of the assessment. Furthermore, a good assessment system will encourage educators, both teachers and lecturers, to determine learning strategies to improve the quality of learning itself (Mardapi 2015). Assessments in general can be classified into 2 parts, namely formative assessments and summative assessments. Formative assessments aim to monitor students' understanding and can provide feedback that can help them to overcome their understanding of a concept. Furthermore, summative assessment is an assessment that is carried out to ensure the achievement of the overall learning objectives (Sumintono and Widhiarso 2014). Currently, the focus of teachers is more on summative assessments such as assessments during UTS and UAS. In fact, formative assessments are also needed to provide information or feedback for educators and students to improve the learning process. However, due to the dense material and teaching schedule, this formative assessment is often ignored, so that students are less optimal in understanding the concept. For this reason, this study designed formative assessments in the form of diagnostic assessments aimed at identifying the achievement of students' competencies, designing learning that is in accordance with the average competencies of students, and forming remedial classes that are able to accommodate students with below-average abilities (Bejar 1984; Wulandari, Putrayasa, and Martha 2023; Zulkifri et al 2022).

The basic accounting concept is given to students in the first semester of the Accounting Study Program. Generally given in the Introduction to Accounting course, which discusses the accounting cycle. The concepts given in this course are very important, because they provide a foundation for understanding accounting in other accounting courses. In addition, in the world of work, basic accounting concepts are needed by companies because they are involved in the preparation of financial statements. For this reason, this course is a prerequisite course in almost all core courses of accounting science such as secondary financial accounting, cost accounting, and public sector accounting. Misunderstanding of basic accounting concepts in the Introduction to Accounting course will cause students to have difficulties in learning advanced accounting material. Plus, the role of lecturers who still generalize the abilities of students, both those who already understand basic accounting and those who do not understand, this causes student learning outcomes to be less optimal. This is where the role of diagnostic assessments to map the understanding of basic accounting concepts for students in the first semester is important. With this mapping, it is hoped that the teaching lecturers will know the extent of students' abilities and make strategic efforts to overcome students' understanding that is still low (Boritz and Carnaghan 2003; Curtis 2011; Watty, Jackson, and Yu 2010). In addition, from the student side, this concept mapping can increase *self-awareness* in learning through intensive exercises on concepts that are not yet understood.

This research is a continuation of the research on the development of diagnostic assessment instruments that had been carried out by researchers the previous year. This study focuses on testing the results of mapping using diagnostic assessments. For this reason, the purpose of this study is to describe the mapping of the understanding of basic accounting concepts using diagnostic assessments.

LITERATURE REVIEW

Diagnostic Assessment

According to the Minister of Education and Culture of the Republic of Indonesia, diagnostic assessment is an assessment that is carried out specifically to identify the competencies, strengths, and weaknesses of students, so that learning can be designed according to the competencies and conditions of students.

This assessment activity must be carried out continuously so that educators can monitor every change or development of their students. Thus, they can continue to update and improve the right learning instruments for students. The function of diagnostic assessment is to identify the level of difficulty of students in learning activities. When viewed from the educator's side, this assessment serves to assist teachers in developing effective and efficient learning designs (Ministry of Education and Culture 2020). Some of the benefits of diagnostic assessments are as follows.

- 1) Students will get learning that is in accordance with their competencies and conditions.
- 2) Students can be more active during learning activities.
- 3) Student achievement can increase.
- 4) It is easier for educators to make learning plans that accommodate the competencies and conditions of their students.
- 5) Educators can get feedback from students in each lesson.

There are 2 (two) types of diagnostic assessments, namely cognitive and non-cognitive. Cognitive diagnostic assessment is an assessment that is carried out at the beginning and end of learning to monitor the extent to which students can understand the learning material. This kind of assessment activity must be carried out regularly before the educator starts and after the end of learning or commonly called formative assessment. Not only that, cognitive assessments can also be done in the middle or end of the semester in the form of exams or commonly called summative assessments. Furthermore, non-cognitive diagnostic assessments are assessments that are carried out to determine the psychological, emotional, and social conditions of students. This means that this assessment is more directed at the personal condition of students. The personal condition of students will affect their achievements at school, such as students who do not feel comfortable at home due to family problems, surely it is also difficult to focus when at school. In this study, the assessment developed is a cognitive diagnosis assessment. The objectives of the Diagnostic Assessment include: (1) Identifying the achievement of students' competencies, (2) Designing learning that is in accordance with the average competencies of students, (3) Forming remedial classes that are able to accommodate students with below-average abilities (Chiou 2008; Sudiyanto 2015)

Mapping Basic Accounting Concepts

Accounting is the "language of business", this term is often used because it is through accounting that information is communicated to interested parties. In general, accounting can be defined as an information system that produces reports to interested parties regarding the company's economic activities and conditions (Soemarso, 1999; Suwardjono 2009). The basic accounting concept is given to students in the Introduction to Accounting course given in Semester 1. This course will be a prerequisite in almost all Accounting Literacy courses, such as Financial Accounting, Cost Accounting, and Public Sector

Accounting. For this reason, students' understanding of the basic concepts of accounting is very necessary to facilitate their understanding of advanced accounting.

Introduction to Accounting focuses on learning on the implementation of accounting processes in service, trading and manufacturing companies. This course appeared in the first semester which is expected to provide a foundation for students majoring in accounting to be able to understand other accounting materials, such as financial accounting, cost accounting, public sector accounting, and other accounting fields. The competency standard in the introductory accounting course is the ability of students to prepare financial statements, whether in services, trade, or manufacturing companies. Accounting is a process that includes, recording, classifying, summarizing, reporting and analyzing financial data from an organization. Recording and classification activities are processes that are carried out routinely and repeatedly every time a financial transaction occurs, while reporting and analysis activities are usually carried out at certain times (Weygandt, Kimmel, and Kieso 2015).

If explained, the accounting process consists of activities, the first stage of recording includes: making or receiving proof of transactions, recording in a journal (diary), transferring books (posts) to the General Ledger. Next, the overview stage includes, making a balance sheet. (*trial balance*), making balance sheets and adjustment journals (adjustment), preparation of financial statements, making closing *entries* (*closing entries*), making post-closing balance sheets (*post-closing trial balance*), making reversing entries (reversing entries). The recording stage starts from the receipt and creation of transaction evidence. A transaction is an event or situation that affects a company's financial position. Each transaction needs to have proof of transaction, to ensure the validity of the recorded transaction and as a reference if there are problems in the future with the transaction made. Proof of transaction can be made by the company's internal party or by an external party (external party) of the company. Broadly speaking, transactions can be separated into two groups, namely transactions that occur within the company and transactions related to other parties. Transactions that occur within the company are events of a circumstance that occur without any connection or connection with other parties.

Based on the results of the concept mapping in the first year, the basic accounting concept can be seen from the 7 main components in the mapping of basic accounting concepts. The seven concepts include: (1) Definition of Accounting, (2) Basic Equations of Accounting, (3) Account Concepts, (4) Make the journal entries and posting in ledger, (5) Make the trial balance and adjusting entries, (6) Prepare the financial statement, and (7) Completing accounting cycle by closing entries. From these concepts, indicators were developed which would later be made in the form of objective test instruments.

METHOD, DATA, AND ANALYSIS

This study uses a descriptive research type with a quantitative approach. Quantitative research methods are research methods that are based on the philosophy of positivism and are used to research on predetermined populations and samples. Research instruments are used in data collection and statistical or qualitative analysis, to test predetermined hypotheses. The description of a phenomenon or situation according to the actual circumstances is the goal of descriptive research. Problems that are the current facts of a population are the focus of this research, which includes the assessment of attitudes or opinions towards individuals, organizations, circumstances or procedures (Dantes 2012; Sugiyono 2014).

The data collection technique in this study uses a diagnostic assessment test that has been developed in the previous year (2024). This assessment is in the form of an objective test with a total of 50 questions. This research was carried out at the beginning of the Even Semester 2024/2025 in January 2025. The sample of this study involved 48 students who sat in Semester 2 and took the Intermediate Financial Accounting course. This course discusses the concept of financial accounting and the treatment of accounting in each post in the financial statement. This course requires an understanding of basic accounting concepts, especially journaling. For this reason, this assessment is given to find out the extent of students' understanding of the basic concept of accounting. The data analysis technique in this study uses descriptive statistics in the form of averages analysis.

RESULT AND DISCUSSION

This study produced a diagnostic test instrument of basic accounting concepts consisting of 7 basic concepts, namely (1) Definition of Accounting, (2) Basic Equations of Accounting, (3) Account Concepts, (4) Make the journal entries and posting in ledger, (5) Make the trial balance and adjusting entries, (6) Prepare the financial statement, and (7) Completing accounting cycle by closing entries. Based on the concept map that has been designed, a total of 65 multiple-choice objective tests have been prepared with variations in cognitive levels by Taxonomy Blooms from C3 to C6. The development of the instrument has gone through a series of tests starting from the content validity test by involving 3 (three) experts consisting of measurement and evaluation experts in education and accounting material experts. In the preparation of instruments, an Instrument Grid is first prepared that adjusts between the concept and the indicators. The instrument grid can be seen in Table 1.

Table 1. Grid of Diagnostic Assessment Instruments Basic Accounting Concept

No	Concept	Indicator	Cognitive Level			
			C2	C3	C4	C5
1	Definition of Accounting	Explaining the Definition of Accounting Explaining the user of accounting information Explain the fields of accounting Explain the basic principles of accounting	2	1 3 4 5,6,7		
2	Basic Equations of Accounting	Able to explain the concept of basic accounting equations Able to analyze financial transactions into basic accounting equations	8	9,10	11	12,13
3	Account Concepts	Able to explain the basic concept of accounts (classification, and form)	14	15,17,18		

No	Concept	Indicator	Cognitive Level			
			C2	C3	C4	C5
		Able to analyze transactions using accounts through credit debit rules and normal balances			16,19	
4	Make the journal entries and posting in ledger	Able to explain the stages in the accounting cycle Able to distinguish between internal and external transactions Able to record transactions in journals, both general journals and special journals Able to perform book-transfer or post to the ledger	20	21,22, 23,27	24,25, 26	
5	Make the trial balance and adjusting entries	Able to explain the concept of the trial balance sheet Able to compile adjustment journal sentences Able to compile a column balance	34,35	36	28,29 31 37	30 32,33
6	Prepare the financial statement	Able to prepare complete financial statements in a company, including: Financial Position Report, Comprehensive Profit and Loss Report, Report on Changes in Retained Earnings/Changes in Capital, Cash Flow Statement, CALK		38,39 44,45	40,41,42 43,46	
7	Completing accounting cycle by closing entries.	Able to compile a closing journal and balance sheet after closing		47,49	48,50	

Based on the content validity test using the Gregory Technique, a ratio of 0.93 was obtained so that it can be categorized as an instrument with a very high level of content validity. Based on the results of interviews related to the preparation of diagnostic test instruments from experts, several things were found, including: (1) the addition of the use of essay tests, to delve deeper into the problems encountered by students in each concept that is still not understood. With the essay test, the lecturer can design the next learning strategy will be given to students, (2) the diagnostic test of basic accounting concepts can be given at the beginning of learning in the next financial accounting course. With this test, lecturers will find out which accounting concepts have been mastered by students and concepts that have not been quasi-mastered. So that later, lecturers can give assignments or exercises that students must do before participating in the

next financial accounting topic, (3) diagnostic tests have a diagnostic function both in terms of knowledge (cognitive) and attitude (non-concatenative). The diagnostic assessment developed in this study is a diagnostic test in the cognitive realm, because it aims to find out the extent of understanding the basic accounting concepts that students often face before taking advanced financial accounting. With the mapping carried out, lecturers can take strategic steps such as giving additional tasks (remedial) so that they are better prepared to receive material on their advanced financial accounting.

Furthermore, these 50 test items were further analyzed to map the understanding of basic accounting concepts in students. This test was carried out on S1 students Accounting Universitas Pendidikan Ganesha who sits in Semester 2 as many as 48 people. The results of the score obtained by students are then categorized as follows:

- 1) Score ≥ 85 understand well (Good)
- 2) Score 70 to 84 is quite understandable (Sufficient)
- 3) Score ≤ 69 lack of understanding (Lack)

The average test results at each concept understanding can be seen in the following Table 2.

Table 2. Mapping Understanding Basic Accounting Concepts to Accounting Students
(Only examples of 5 students)

Name	Concept 1	Concept 2	Concept 3	Concept 4	Concept 5	Concept 6	Concept 7
Student 1	71	33	50	100	80	78	50
Criteria	Sufficient	Lack	Lack	Good	Sufficient	Sufficient	Lack
Student 2	71	50	67	100	70	89	75
Criteria	Sufficient	Lack	Lack	Good	Sufficient	Good	Sufficient
Student 3	71	100	83	75	80	89	100
Criteria	Sufficient	Good	Sufficient	Sufficient	Sufficient	Good	Good
Student 4	71	67	83	75	40	78	50
Criteria	Sufficient	Lack	Sufficient	Sufficient	Lack	Sufficient	Lack
Student 5	57	50	83	75	70	89	75
Criteria	Lack	Lack	Sufficient	Sufficient	Sufficient	Good	Sufficient

Based on the mapping above, it can be seen that students have understood a concept well and which have not. With this mapping, teachers can design the right learning methods to help students better understand the concepts that are still lacking. In this study, students who received a low assessment were given a remedial by answering essay questions that had been prepared before. In addition, students are also given teaching videos about the accounting cycle to better understand the accounting concepts that are still lacking.

Meanwhile, on average, the results of the mapping of basic accounting concepts for all students can be seen in Table 3. Based on the mapping data, it can be seen that the concept of basic accounting equations and the concept of adjustment journals have low scores of 68 and 63 and are still below the minimum criteria set, which is 70. The results of this study show that the concept of adjustment is still a scourge for some students. These findings are in line with several other studies that show that adjustment

materials are still difficult for students to understand. These findings also show that the understanding of the concept of basic accounting equations as a foundation in understanding the concept of accounts in journaling still gets a low score. This is understandable, because often teachers skip this material or only mention it at a glance. Students are directly taught the concept of journals with a *double entry system*. As a result, students do not have an understanding of concepts related to the increase and decrease of assets, debts, and equity. Weak understanding of the concept of adjustment journals can be found in the research (Lisa and Susilowibowo 2016; Mardiyani n.d.; Putra and Nugroho 2016). This shows the need for strategic efforts related to innovation in learning, both the selection of media and learning models in order to be able to increase students' understanding of the concept of adjustment journals.

Table 3. Mapping Understanding Basic Accounting Concepts

Class	Concept 1	Concept 2	Concept 3	Concept 4	Concept 5	Concept 6	Concept 6
2 C	78	69	87	85	65	82	86
2 D	76	67	85	82	60	79	86
Average	77	68	86	83	63	81	86

CONCLUSION

The mapping of basic accounting concepts in this diagnostic assessment is divided into 7 concept maps, namely (1) (1) Definition of Accounting, (2) Basic Equations of Accounting, (3) Account Concepts, (4) Make the journal entries and posting in ledger, (5) Make the trial balance and adjusting entries, (6) Prepare the financial statement, and (7) Completing accounting cycle by closing entries. The results of the study show that diagnostic assessment can map the understanding of basic accounting concepts in accounting students into 7 concept maps. The average of each concept is as follows: concept 1 is 77, concept 2 is 68, concept 3 is 86, concept 4 is 83, concept 5 is 63, concept 6 is 81, concept 7 is 86. On average, concept 2 is related to the basic accounting equation and concept 5 is the adjustment to obtain the lowest average result compared to other concepts. Furthermore, students' understanding of each concept is analyzed which can then be given a reward for concepts that are still lacking. Based on this, it can be concluded that with a diagnostic assessment of basic accounting concepts, both lecturers and students can find out the weaknesses in each concept. With this mapping, lecturers can design learning strategies that suit the needs of students.

IMPLICATION/LIMITATION AND SUGGESTIONS

Based on the findings of this study, several things can be suggested, including the following. First, the importance of diagnostic assessments in accounting learning should be a concern for lecturers teaching advanced financial accounting courses. With the test instruments produced, lecturers can design the right learning strategy, according to the student's initial ability to be better prepared to take the next course. Second, the results of this study can initiate other researchers to conduct a deeper analysis related to the function of diagnostic assessment, especially in accounting learning where there are still few relevant research results. Third, this research can be developed to a further stage, namely by using digital media both for diagnostic assessments paired with digital materials to make it easier for students to understand a

concept in accounting. The limitations of the research are only presented related to the mapping of basic accounting concepts with the use of diagnostic assessments. Regarding the effectiveness of the use of assessments, further testing will be carried out, which is not conveyed in this study.

REFERENCES

- Bejar, ISAAC I. 1984. "Educational Diagnostic Assessment." *Journal of Educational Measurement* 21(2):175–89. doi: 10.1111/j.1745-3984.1984.tb00228.x.
- Boritz, J. Efrim, and Carla A. Carnaghan. 2003. "Competency-Based Education and Assessment for the Accounting Profession: A Critical Review." *Canadian Accounting Perspectives* 2(1):7–42. doi: 10.1506/5K7C-YT1H-0G32-90K0.
- Chiou, Chei Chang. 2008. The Effect of Concept Mapping on Students' Learning Achievements and Interests. *Innovations in Education and Teaching International* 45(4):375–87. doi: 10.1080/14703290802377240.
- Curtis, Susan M. 2011. Formative Assessment in Accounting Education and Some Initial Evidence on Its Use for Instructional Sequencing. *Journal of Accounting Education* 29(4):191–211. doi: 10.1016/j.jaccedu.2012.06.002.
- Dantes, N. 2012. *Metode Penelitian*. edited by P. Christian. Yogyakarta: Penerbit Andi.
- Kemendikbud. 2020. Buku Saku Asesmen Diagnosis Kognitif Berkala. *Repostori Kemendikbud*.
- Lisa, Tania, and Joni Susilowibowo. 2016. Pengembangan Bahan Ajar E-Modul Sebagai Pendukung Pembelajaran Kurikulum 2013 Pada Materi Ayat Jurnal Penyesuaian Perusahaan Jasa Siswa Kelas X Akuntansi Smk Negeri 1 Surabaya Joni Susilowibowo Abstrak. *Pengembangan Bahan Ajar EModul Sebagai Pendukung Pembelajaran Kurikulum 2013 Pada Materi Ayat Jurnal* 1–9.
- Mardapi, Djemari. 2015. *Pengembangan Instrumen Penelitian Pendidikan*. Yogyakarta.
- Mardiyani, Riry. n.d. "Dalam Pembelajaran Akuntansi Materi Jurnal Penyesuaian Pada Siswa Kelas Xi Ips 3 Sma Negeri 3 Bukittinggi Dengan Metode Bermain Peran (*Role Playing*).
- Putra, Ditto Rahmawan, and Mahendra Adhi Nugroho. 2016. Pengembangan *Game* Edukatif Berbasis Android Sebagai Media Pembelajaran Akuntansi Pada Materi Jurnal Penyesuaian Perusahaan Jasa. *Jurnal Pendidikan Akuntansi Indonesia*. doi: 10.21831/jpai.v14i1.11364.
- Soemarso, SR. 1999. *Akuntansi Suatu Pengantar*. Jakarta: Rineka Cipta.
- Sudiyanto. 2015. "Pengembangan Model Assesment As Learning Pembelajaran Akuntansi Di SMK." *Jurnal Penelitian Dan Evaluasi Pendidikan* 19(2):189–201.
- Sugiyono. 2014. *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, Dan R&D)*. Bandung: Penerbit Alfabeta.
- Sumintono, Bambang, and Wahyu Widhiarso. 2014. *Aplikasi Model Rasch Untuk Penelitian Ilmu-Ilmu Sosial*. Bandung: Trim Komunikata Publisher.

- Suwardjono. 2009. *Akuntansi Pengantar I Proses Penciptaan Data Dan Pendekatan Sistem*. Yogyakarta: BPFE.
- Watty, Kim, Margaret Jackson, and Xin Yu. 2010. Students' Approaches to Assessment in Accounting Education: The Unique Student Perspective. *Accounting Education* 19(3):219–34. doi: 10.1080/09639280902836939.
- Weygandt, Jerry J., Paul D. Kimmel, and Donald E. Kieso. 2015. *Financial Accounting: IFRS*.
- Wulandari, Gusti Ayu Putu Trisna Wulandari, Ida Bagus Putrayasa, and I. Nengah Martha. 2023. Efektivitas Asesmen Diagnostik Dalam Pembelajaran Berdiferensiasi Pada Pelajaran Bahasa Indonesia." *Nusantara: Jurnal Pendidikan Indonesia* 3(3):433–48. doi: 10.14421/njpi.2023.v3i3-5.
- Zulkifri et al. 2022. *Buku Panduan Pembelajaran Dan Asesmen (Pendidikan Anak Usia Dini, Pendidikan Dasar Dan Menengah)*.