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Analysis of the Ability of 'Understanding' in Support of its Measurability*

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Course Outcomes (COs) are prepared by the faculty of different streams according to the syllabus provided by the University or Board, to which their programs are affiliated to. This involves the selection of appropriate action verbs. While doing so, they are referring to the Bloom's taxonomy table. Recently, it has been modified with the aim of bettering the learning aspect of the students and it has been suggested that 'Understand' is not a measurable one. Understanding is nothing but acquiring the knowledge of the system or device or unit one deals with. One cannot apply theoretical concepts and governing equations without acquiring comprehensive knowledge about it. Since many courses deal with the ability of understanding, it must be made clear to the teaching community about its usage. In this context, the present work analyzes by considering different examples pertaining to various core engineering and science disciplines. Initially, all the cognitive levels of bloom's taxonomy are discussed in a general perspective. Subsequently, the levels of learning are discussed with regard to a simple mathematical formula and it is visualized that understanding aspect is measurable. Further, different types of numerical examples or instances of various engineering domains are depicted. Same method is applied to science streams and then with different levels of assessment. Also, special emphasis is given on measuring other abilities that are mentioned in the reference taxonomy table. It is observed that measurement of 'Understand' is done before the measurement of either 'Apply' or 'Analyze' for any numerical problem in case of engineering streams. It must be the same for any other stream or branch of science. Through different short answer questions used in both engineering and non-engineering streams, its measurability is further established. Analysis clearly indicates that it is only a myth that 'Understand' is not measurable and that it is not advisable to be used as an action verb, while preparing the learning outcomes. Thus, the present work identifies the appropriateness of 'Understand' as a measurable quantity.

Keywords: learning outcomes; understand; Bloom's taxonomy; measurable verbs

1. Introduction

With increasing demand for Outcome Based Education (OBE), the faculty of various engineering institutes or colleges across the globe are expected to prepare a list of course outcomes, which are the abilities expected at the end of the course. They are the target statements that describe the abilities gained by the students at the end of any learning activity. Further, the faculty are expected to write the Learning Objectives (LOs) of the intended lectures or topics. In most of the cases they are referred as Interned Learning Outcomes (ILOs or simply LOs) achieved based on the teaching-learning process adapted in the class. At this juncture, they are referring to the taxonomy table suggested by a group of educators, led by Bloom [1]. This table gives the hint of nouns reflecting different forms of thinking as shown in Fig. 1. They were reviewed later and a revised taxonomy table was framed by Anderson and Krathwohl [2]. Since, thinking is an active process, the nouns of the original table are replaced by appropriate action verbs. So, the revised table consists of knowledge as remembering. Also, comprehension and synthesis were retitled as understanding and creating. This is just to make better reflection of the nature of thinking defined in each category. Accordingly, the six major cognitive skills are Remembering, Understanding, Applying, Analyzing, Evaluating and Creating. These cover all the levels of thinking, i.e. from basic to complex. Changing them over a certain period of time clearly indicate that the aim of framing the levels and providing guidelines is misleading. On the other hand, teaching-learning has not changed with time. It has been the same and stake holders are successful in achieving the target outcomes. But, over the time, educators have come up with the measurability of these verbs and suggested that understand could be treated as unmeasurable. It is quite interesting to observe that how 'Understand' cannot be measurable or operational. Same is the case with 'Appreciate' or 'Gain acquaintance with'. In such a scenario, after attending a lecture on 'the concept of entropy', the students are expected to say that 'they have identified the concept of entropy' or something else than saying that 'they have understood the concept of entropy'. This aspect is actually making the students and teachers confused and making their life miserable with regard to identifying and applying suitable action verbs. Furthermore, through different communications or text books, the educators are trying to make it complicated for these two stake holders, i.e. faculty and students, by suggesting not to use words like 'Understand' or 'Appreciate'.

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Nouns used in earlier Bloom's taxonomy table	Action verbs used in the present Bloom's taxonomy table
Evaluation	Create
Synthesis	Evaluate
Analysis	Analyze
Application	Apply
Comprehension	Understand
Knowledge	Remember

Fig. 1. Different levels of learning as per the old and new taxonomy tables.

Earlier, Gurocak [3] presented a set of performance criteria to convert all the Program Outcomes (POs) into measurable ones. These criteria form the middle layer between COs and POs. For that, the abilities acquired in each are crucial. Later, Lawlor and Hornyak [4] acknowledged that framing of smooth LOs would enhance students' performance. They supported the use of appropriate spreadsheet in preparing those outcomes, which would be more smart and apt. Susan and Lisa [5] discussed understanding aspect in case of engineering practice. Also, they suggested a new taxonomy in this area and applied to two engineering courses. Lile and Bran [6] identified the difficulties faced by the faculty in writing outcomes and working towards the same in order to ensure that graduates achieve the targeted skills. They recommended a web based portfolio as an instrument for evaluation that can be applied to all the areas of academics. Stanny [7] tried to investigate the importance of measurable verbs in students' learning. Effort was made to see the measurability aspect of the listed outcomes in the Bloom's table. Understand aspect was also discussed and the unique words available for each cognitive level were detailed. Clearly, the measurability aspect was to see whether such words can be operational or not, keeping in view, what the teacher is intending to teach and what the student is expected to learn. Chatterjee and Corral [8] reviewed about writing learning objectives for medicinal applications. They proposed few tips in the preparation of LOs for various courses like Malignant Hyperthermia and discussed how relevant they had been. Osueke et al. [9] analyzed the usage of learning objectives by the undergraduate students in their study. These words made the stake holders understand what would be taught in the class. In few cases, they were found inappropriate and overlapping. A significant finding was that they had not been the essential part of the T-L process and the student's performance. Also, students' interest has been on the contents rather than the objectives.

Kristina and Whitney [10] discussed the perception and purpose of learning objectives. Based on the analysis related to the students' performance, they identified the not-so important aspect of learning objectives. In fact, the performance was independent on the framing of LOs. Recently, Erikson and Erikson [11] linked learning outcomes and critical thinking with good intention. More concentration on LOs by the teachers and students would make them deviate from the path indented and the main objective of acquiring the requisite abilities would not be met. Studies reveal crucial aspects about framing learning outcomes. As pointed by few researchers, the measurability is in question. Earlier works clearly show the diversified aspects of the use of LOs. In this context, the present work deals with certain apprehensions like whether such chosen action verbs are really viable or not. Also, whether they would add to the teaching-learning process or they will confuse the main stake holders of the program. Clearly, the measurability of such outcomes is not easy to determine, as observed in earlier works. In such a scenario, this work tries to see whether 'Understand' is suitable or not by elaborating its measurability. This will provide the faculty and students, more clear-cut information about such action verbs and their measurability.

2. Solution Methodology

In this work, the problem selected is to show that the action verb 'Understand' is really appreciable and measurable. It is solved by clarifying through different real-time examples. As known to all, a well-supported evidence-based theory becomes acceptable until it is proved otherwise. Similarly, in any type of learning or scholarly activity, various examples at different levels are used to render the identified concept acceptable. The present work adapts a similar approach as shown in Fig. 2. Initially, through a simple mathematical formula, students and faculty experience the different levels of learning used in the class. Then, through numerical examples, measurability of understanding is first checked. After clear understanding is obtained on its measurability, the same is applied to different streams successfully. This is just to concretize their initial experience and it is replicated through observations made in different areas of specialization. Then the same aspect is tested in different types and levels of assessment effectively in order to generalize the concept. Established concept is critically checked before it is suggested for implementation. The present work attempts to prove the theory that 'Understand is measurable', using experiential learning through numerical problems in Mechanical and Civil Engineering. Once the experience is concretized, the same is adapted to different

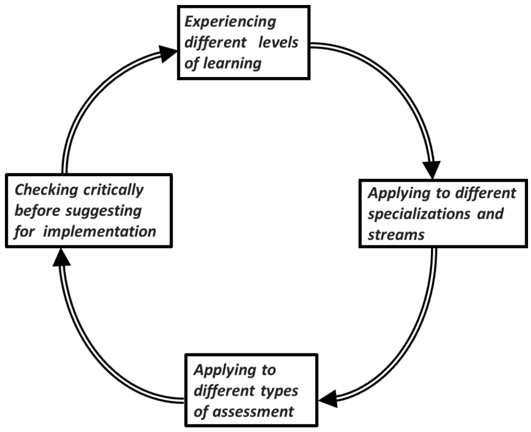


Fig. 2. Methodology adapted in the present work.

branches of engineering for further establishment. Subsequently, detailed observations are made to ascertain whether the selected idea is appropriate or not, through short answer and multiple choice questions applicable in both engineering and science streams. Once it is identified that the target is reflected in all the observations, abstract conceptualization is done by critically reviewing its implementation at various stages of evaluation or assessment. In this work, it is ensured that active experimentation is carried in different situations and instances. This method includes testing also to see the implications of the concept in different situations, with examples selected in diverse streams, before being suggested for implementation.

3. Results and Discussion

In this section, initially, understanding of the basic bloom's taxonomy table is discussed. Then, the same is applied to a simple mathematical formula in order to establish its importance. Then, a numerical problem covering Thermodynamics, which is applicable to Mechanical Engineering program is discussed. Another problem based on Strength of Materials is also elaborated. After establishing the aspect that 'Understand is measurable' through numerical problems, it is checked through different types of short answer questions, used in both engineering and science streams. In the end, critical analysis on the measurability of 'Understand' is done by considering the actual principles of valuation. Attempt is made to establish the fact by exemplifying through basic formulae, numerical problems and short answer questions applicable in different streams by showcasing real-time examples.

3.1 Understanding of Different Cognitive Levels of Thinking in Case of a Simple Mathematical Formula

In this section, understanding of different cognitive levels of thinking as mentioned in the revised taxonomy table is discussed, using a simple mathematical formula. These are nothing but different levels of learning expected from the students, when someone teaches a concept in the class as per the syllabus. Initially, they will be able to remember what the instructor says. Remembering is the lowest level of thinking or reasoning. After remembering some concept or formulae, they would be able to understand about the scheme it works for. After understanding it, they would be able to apply for different systems or instances. After applying like that to different configurations, they would be to analyze something. After analyzing few such things, they would be able to evaluate something. After evaluating those things, they will be able to create something. The concept of $(a + b)^2 = a^2 + b^2 + 2ab$ is explained by the teacher in a 'Mathematics' class. All the levels appropriate to this teaching aspect is depicted in Fig. 3. Initially, the student will try to remember the formula as it is essential to gain 1 or 2 marks. Then, he/she will try to understand what it is. Some quantity is being added to another quantity and upon squaring, it is leading to something else. By evaluating the L.H.S and R.H.S, the student understands that there can be a relation that exists between two independent variables like a and b. After that, the student will be able to apply to different systems or variables or quantities. After applying, the student will be able to investigate or analyze whether it can be really applicable to all such types of quantities or not. After analyzing, the student will be able to evaluate something that such correlation holds good for certain numbers only. After evaluating, he/she will be to create that beyond that relationship, there exists something else or these variables can be reversed and it can be equal to $(b + a)^2$ or like.

3.2 Numerical Examples in Mechanical and Civil Engineering Disciplines

In this section, numerical examples from different branches of engineering are taken to visualize and introspect different abilities that can be clearly assessed. Initially, a mechanical engineering problem is depicted showing clear levels of remembering, understanding and applying as shown in Table 1. The problem deals with a vessel containing fluid and there is some power input and accordingly heat is transferred. After noting the details of the problem, since the work is given as an input to the system, it would be considered as negative. This is clear aspect of understanding only, assessed for 1 mark. After understanding about the system, the student will be able to identify the appropriate equation involving first law of thermodynamics. This is again measuring of 'Understand', assessed for 1 mark. Then after applying, the student will be to find the value of

Cognitive ability	Reasoning or analysis	In terms of assessment
Creating	After evaluating that such relation exists between two numerals only, like $(2+3)^2$, then student will be able to create something like, if $(2+3)^2$ could be equal to $(3+2)^2$ or 5^2 and see what if the numbers are changed to other type.	Establish the correlation between two quantities like c and d.
Evaluating	After analyzing, the student will be to evaluate that it applies to two numerals only and those can be quantified separately.	What do you infer from the analysis of $(a+b)^2$?
Analyzing	After applying, the student will be able to analyze the appropriateness of the formula.	What do you infer from $(a+b)^2$ after applying to various types of quantities?
Applying	After understanding, the student will be able to apply to various types of quantities or variables.	Apply the formula of $(a+b)^2$ to different scenarios like $(2+3)^2$, (brinjal+carrot)^2, (diesel+ petrol)^2, $(x+y)^2$ etc. What if a=2 and b=3?
Understanding	If there exist two quantities like a and b, there can be a relation possible such as $(a+b)^2=a^2+b^2+2ab$.	How do you express $(a+b)^2$ in other terms?
Remembering	Remembering it in order to gain basic knowledge of the formula, i.e. $(a+b)^2=a^2+b^2+2ab$.	What is $(a+b)^2$? For 1 or 2 marks.

Fig. 3. Application of cognitive levels to a simple mathematical formula.

internal energy. This is clearly applying, assessed for 2 marks. Since internal energy is positive, the student will be able to comment that it is increasing. This is again measuring of understand for 1 mark. For a simple numerical problem of Mechanical Engineering, the abilities tested are Remember, Understand and Apply. Remembering aspect is assessed for 1 mark, understanding aspect is assessed for 3 marks and applying is assessed for 2 marks.

Another numerical problem covering Strength of

Table 1. Problem covering Thermodynamics (Applicable to Mechanical Engineering program)

Question: A fluid contained in a vessel is stirred by a paddle wheel. If the power input to the paddle wheel is 2 kW and the heat transferred to the system is 80 kJ/s, determine the change in internal energy and comment on it. 6 Marks

Solution to the numerical problem in steps:	**Type of ability tested**	**Marks given in the assessment**
Power input = 2 kW. Therefore, work input, W = -2 kJ/s.	Understand	1 Mark
From the first law of thermodynamics, $Q = \Delta U + W$.	Remember	1 Mark
For a system of vessel with some paddle wheel work, we can have $Q = \Delta U + W$.	Understand	1 Mark
Therefore, for a vessel with paddle wheel, $\Delta U = Q-W = 80-(-2) = 82$ kJ/s.	Apply	2 Marks
Hence, the change in IE = 82 kJ/s. Since it is positive, internal energy is increasing.	Understand	1 Mark

Table 2. Problem covering Strength of Materials (Applicable to Civil Engineering program)

Question: A rectangular block with the dimensions of 100 mm × 100 mm has a height of 10 mm. A tangential force of 10 kN is applied on the upper edge and it is displaced by 1 mm, relative to lower face. Identify the direct shear stresses and strains developed in the element. 6 Marks

Solution to the numerical problem in steps:	**Type of ability tested**	**Marks given in the assessment**
Given, force = 10 kN. Since it is a rectangular block, area on which force is applied = 100 mm × 100 mm = 10000 mm^2.	Understand	1 Mark
From the formulae, $\tau = F/A$ and $\gamma = e/L$.	Remember	1 Mark
For a rectangular block, when force is applied tangentially, the direct shear stress developed in it will be equal to F/A.	Understand	1 Mark
Actual value of stress, $\tau = 10 \times 10^3/(100\times100) = 1$ N/mm^2.	Apply	1 Mark
Shear strain developed in this rectangular element will be equal to e/L.	Understand	1 Mark
Actual value of shear strain, $\gamma = 1/(10) = 0.1$.	Apply	1 Mark

Materials (applicable to Civil Engineering program) is considered as shown in Table 2. In this example, a rectangular block is considered with the application of tangential force on the upper edge and is subjected to displacement. Given details are noted and based on the type of block, area on which the force is acting is calculated first, which is a measure of 'Understand'. Then, the formula for calculating the shear stress related to the block is identified, which is again a measure of 'Understand'. Then, by applying the formula, shear stress is calculated. Similarly, appropriate strain formula is identified, which is again a measure of 'Understand'. Then, by applying the formula, shear strain is calculated. In this case as well, both the abilities like 'Understand' and 'Apply' are measured. Thus, the two numerical problems considered here clearly demonstrate how 'Understand' is clearly measurable. According to the level of measuring, marks are allotted.

3.3 Measurement of 'Understand' using SAQs in Various Engineering Disciplines

In order to authenticate the facts observed in numerical problems, Short Answer Questions (SAQs), which are being asked in various examinations in case of four core engineering disciplines are presented in this section. Initially, questions related to Mechanical Engineering program are detailed as shown in Table 3. The meaning of a thermodynamic system is assessed for 1 mark. It is nothing but region under consideration. The system and surroundings are separated by a boundary. The region

Table 3. SAQs used in various engineering disciplines

Questions related to Mechanical Engineering program	**Type of ability tested**	**Remarks**
Question 1. What does a thermodynamic system mean?	Understand	1 Mark, Answer: A system is a region under consideration. The student will be able to answer this question, if he/she understands that the region under consideration is separated from others with the help of a boundary and that particular region is considered as a system.
Question 2. First law of thermodynamics deals with: a. Conservation of mass b. Conservation of energy c. Conservation of momentum d. Conservation of heat	Understand	1 Mark, Answer: b. Explanation: First law talks about conversion of one form of energy to another. Here, the student is able to understand that Q and W are mutually convertible and thus energy is remaining constant. So, it is nothing but law of conservation of energy. Hence, the answer is 'b'.
Questions related to Civil Engineering program	**Type of ability tested**	**Remarks**
Question 3. What is thermal stress?	Understand	1 Mark, Answer: When change in temperature occurs in a material, thermal stress is developed. The stress thus developed during the temperature change in any material is known as thermal stress.
Question 4. Stress is proportional to strain. This is known as ____________ . a. Euler's law b. Avagadro's law c. Newton's law d. Hooke's law	Understand	1 Mark, Answer: d. Explanation: Hooke's law only relates stress and strain. It says that they are proportional to each other. Hence, the answer is 'd'.
Questions related to Electrical Engineering program	**Type of ability tested**	**Remarks**
Question 5. What is voltage?	Understand	1 Mark, Answer: Voltage is seen as the electric potential difference per unit charge between two points in an electric field.
Question 6. Which one of the below is not an electronic device? a. transistor b. capacitor c. magnifying glass d. amplifier	Understand	1 Mark, Answer: c. Explanation: Transistor, capacitor and amplifier are electronic devices, as these are controlled by electron transport for processing information. But, a magnifying glass is not an electronic device. Hence, the answer is 'c'.
Questions related to Computer Science Engineering program	**Type of ability tested**	**Remarks**
Question 7. What is a structure?	Understand	1 Mark, Answer: A structure is a user defined data type, used in C or C++. It can be used to a group of items or one.
Question 8. Software is referred as a ___________ . a. set of programs, documentation & configuration of data b. programs set c. documentation set d. configuration of data	Understand	1 Mark, Answer: a. Explanation: Software is clearly a collection of programs. Documentation and data setup are also included for them to work. Hence, the answer is 'a'.

Table 4. SAQs used in science streams

Questions related to Physics	**Type of ability tested**	**Remarks**
Question 9. What is a scalar quantity?	Understand	1 Mark, Answer: A quantity which has only magnitude and no direction is called as a scalar quantity. Example: mass.
Question 10. Which of the following has zero magnitude? a. fixed vector b. zero vector c. modulus of a vector d. unit vector	Understand	1 Mark, Answer: b, Explanation: A zero or null vector is a vector that has zero magnitude and an arbitrary direction. The velocity vector of a stationary object is a zero vector. Hence, the answer is 'b'.
Questions related to Chemistry	**Type of ability tested**	**Remarks**
Question 11. What is covalent bond?	Understand	1 Mark, Answer: A covalent bond is a chemical bond that involves the sharing of electrons to form electron pairs between atoms.
Question 12. Shapes of drops of liquid are spherical because of ____________ . a. viscosity b. conductivity c. absorption d. surface tension	Understand	1 Mark, Answer: d. Explanation: Shapes of drops of liquid are spherical because of surface tension, as it reduces the surface area to a minimum. Hence, the answer is 'd'.

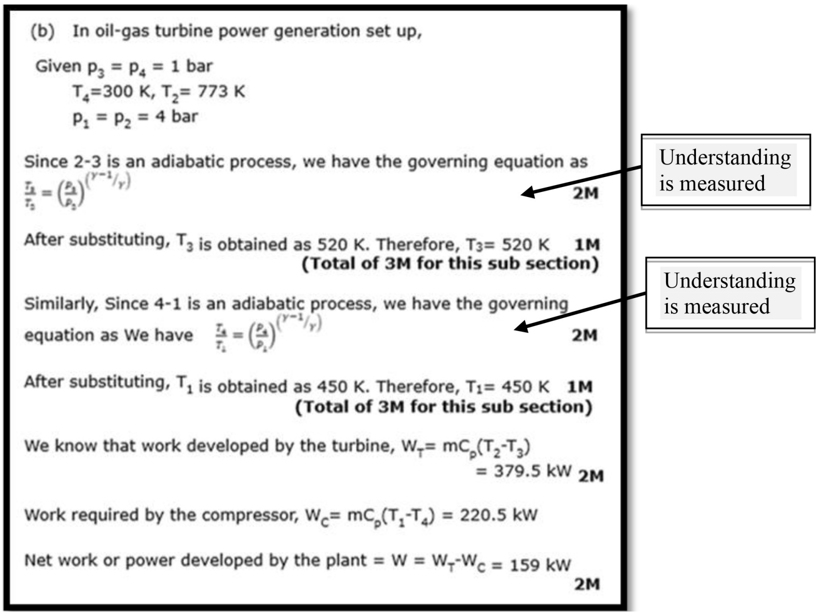
within the boundary is the region under consideration and is nothing but system as understood by the student. In this case, the ability being measured is clearly 'Understanding' and through the question asked, it is clearly seen as a measurable one. Similarly, in the Multiple Choice Questions (MCQs) related to first law of thermodynamics, the ability tested is 'Understand' only. First law deals with W and Q, saying that they are mutually convertible. This gives the knowledge to the student that energy is preserved. Accordingly, the student understands that this is same as 'conservation of energy'. Subsequently, 1 mark questions related to Civil Engineering program are discussed. Based on the understanding that thermal stresses are the stresses developed due to variation in temperature, the students would be able to define the same for gaining one mark. Similarly, after understanding the Hooke's law, the students would be able to answer the question related to stress and strain. Correspondingly, the aspects of 'voltage' and 'structure' in Electrical and Computer Science Engineering programs are provided by the students, only after understanding the same. Similarly, questions related to electronic devices and software test the ability of understanding only. The SAQs mentioned here in various engineering disciplines clearly support the idea gained through numerical problems.

3.4 Measurement of 'Understand' using SAQs in Science Stream

In this section, SAQs related to science stream are discussed as shown in Table 4 in order to confirm the measurability across various courses. In case of a course like 'Physics', a question like 'What is a scalar quality?' has been asked for many years. A student will be able to answer this question, if he/she understands that aspect clearly. The cognitive ability experienced here is 'Understand' only. Out of the quantities available, the one which has some magnitude is a scalar and if it has direction, it can be a vector. This is how any student will be able to think/understand about it and then answer accordingly. Similarly, the question on the magnitude of a vector has been asked in the examinations since long. Clearly, the understanding aspect that a vector can be of zero magnitude as well, is examined here. Based on the topic related to 'chemical bonding', questions on the definition of various types of bonds can be asked as shown in Table 4. Here also, the ability measured is 'Understand' only. Similarly, students understand that because of reduced surface area in case of liquid drops, they are spherical in shape. Accordingly, they will be able to answer the question in order to gain 1 mark. The present section related to science stream and earlier segments of engineering discipline thus prove that the aspect of 'Understand' is clearly measurable across various disciplines and the assessment can be of different levels and types.

4. Critical Analysis on the Measurability of 'Understand'

Irrespective of any discipline or science or field of the problem, initially, the students have to understand about what the system is and accordingly only, they will be able to apply suitable governing equations. Teachers have been preparing the principles of valuation for the last 50 or 60 years or so like that only. A model principles of valuation used by the present author in a course, which has been


(b) In oil-gas turbine power generation set up,

Given $p_3 = p_4 = 1$ bar
T_4=300 K, T_2= 773 K
$p_1 = p_2 = 4$ bar

Since 2-3 is an adiabatic process, we have the governing equation as
$\frac{T_3}{T_2} = \left(\frac{p_3}{p_2}\right)^{(\gamma-1/\gamma)}$ 2M

After substituting, T_3 is obtained as 520 K. Therefore, T_3= 520 K 1M
(Total of 3M for this sub section)

Similarly, Since 4-1 is an adiabatic process, we have the governing
equation as We have $\frac{T_4}{T_1} = \left(\frac{p_4}{p_1}\right)^{(\gamma-1/\gamma)}$ 2M

After substituting, T_1 is obtained as 450 K. Therefore, T_1= 450 K 1M
(Total of 3M for this sub section)

We know that work developed by the turbine, W_T= $mC_p(T_2-T_3)$
= 379.5 kW 2M

Work required by the compressor, W_C= $mC_p(T_1-T_4)$ = 220.5 kW

Net work or power developed by the plant = W = W_T-W_C = 159 kW
2M

Fig. 4. Model principles of valuation.

offered four times from 2017–21 for PG in Engineering program in a national engineering institute of repute, is shown in Fig. 4. It is the authentic one, implemented for all the earlier academic years, except 2019–20, where the online MCQ pattern was adapted due to Covid-19. In order to solve the mentioned problem related to a course on 'Applied Thermodynamics and Turbomachinery', the student has to understand that processes 2–3 and 4–1 in a gas turbine power generation cycle are adiabatic. After understanding that these two are adiabatic processes, the student will be to apply the corresponding governing equation to solve for Temperatures, T_3 and T_1. For understanding the process (1 mark) and identifying the suitable equation (1 mark), 2 marks are awarded. For application/substitution, 1 mark is awarded. A total of 3 marks are awarded for this sub-section of a 12 marks numerical problem. This is taken as it is from the course conducted by the present author, where the governing academic authorities have asked for the principles of valuation and the same is confirmed by those educators or moderators, before being implemented. Ability to gain the basic understanding of the system, what it is (whether it is an AC unit/ a DC unit/ a Refrigerator/ an Air Conditioning unit/ a Beam/ a Bar as per the discipline of the problem chosen), has been the primary interest of the student. Accordingly, they would be able to adapt appropriate governing equations to solve the problems correctly. For this, 2 or 3 marks (out of a numerical problem of 8 or 10 marks, either in UG or PG program) have been awarded by the teachers across the globe since long. Same is well appreciated by the educators or experts. Further, this is acknowledged by the teachers and students, who are actively involved in the teaching-learning processes. This is the clear indication that understand has been measurable and is used by teachers directly or indirectly. Thus, using 'Understand' as a learning outcome is clearly advisable and meaningful. It is no more an 'avoidable' action verb.

5. Conclusions

Course outcomes are prepared by the faculty community across various disciplines in order to have better understanding of the abilities achieved by the students at the end of the course. In view of diversified suggestions on its measurability, they are in quite confused state, whether to use 'Understand' as a probable learning outcome or not. Present study conducts detailed analysis on the extent of different action verbs, which can be used for thorough understanding of both teachers and students to ensure that best teaching-learning practices are adapted and successfully implemented. Initially, the reference bloom's taxonomy table is discussed using a simple mathematical relation with the aim of making it clear with regard to different cognitive levels of understanding by the students. Later, due weightage is given to the learning ability of 'Understand'. The method of experiential learning strategy is used here to prove that 'Understand' is really worthy to use and is actually measurable. Various examples applicable to different engineering programs of UG and PG are depicted. Examples are considered based on different types of assessment, which normally teachers adapt. With the numerical examples used in Thermodynamics and Strength of Materials, it has been clear that students understand about the system in detail, before actually applying the corresponding governing equations in order to find the unknown variable. Later, short answer questions are taken as examples to see whether the assumption is correct or not. Detailed analysis shows that the action verb 'Understand' is really measurable and worthy to use as appropriate action verb. Then, the same methodology is applied to courses in science stream. It is observed that students' understanding is clearly assessed through different simple descriptions. This confirms that 'Understand' is the basic cognitive ability experienced by the students across disciplines, before actually 'applying' the principle or process in order to solve the problem, where marks have been assigned by the teaching fraternity, showing that it is indeed a measurable outcome.

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