

Accounting Ethics Education in the Industrial Revolution 4.0: An Educators Perspective

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Abstract—The industrial revolution 4.0 had transformed the way business organizations worked. Accounting educators needs to adapt with this situation by preparing students to have the ability to use information technology and be able to give insights from data, increase their expertise, be open-minded in facing the changes and being able to maintain good values and ethics as well. This paper examines the perception of Indonesian educators about the importance of accounting ethics education within the industry 4.0 era. This study portray the method used to teach ethics in accounting courses, also the problems and factors that encourage the educators in this education process. The method used was survey method, through questionnaires and interviews. The findings revealed that educators believe ethics must be increased in the industry 4.0 due to the risk of fraud that is anticipated to occur in the business world where technology and innovation involved. The educators anticipated the possibility by inserting the topic of ethics in the process of teaching accounting subjects and discussing current ethical issues in accounting. Achieving the learning objective formulated in the curriculum, fulfilling their responsibility to give further understanding of accounting, are the factors that encourage educators in teaching ethics. Whereas time constraints and lack of reference are the factors that the educators might struggle to overcome.

Keywords: *accounting, industrial revolution 4.0, ethics, educator, teaching*

I. INTRODUCTION

The term industry 4.0 refers to a new manufacturing system which collaborates advanced manufacturing techniques with the Internet of Things that can communicate, analyze, and process data [1]. Satya [2] stated that the fourth era of Industrial Revolution is marked by the use of artificial intelligence, super computers, genetic engineering, nanotechnology, automatic automobiles, and innovation. This advanced business process gives positive impacts to the business industries, some of which are increasing business efficiency, reducing errors, preventing and controlling risks, improving companies competitiveness, and increasing human resource efficiency [3].

The industry 4.0 has a significant effect on accounting. The accounting process which usually consist of recording transactions, processing transactions, sorting transactions, and

financial reporting is now all automated using accounting technology [4]. It has the ability to do analysis work that is normally done by accountants, such as financial statement analysis or the analysis about companies behavior. Furthermore, Iswanto and Wahjono [4] stated that accountant later will be "forced" to develop mobile applications that can access data directly from mobile devices, tablets and virtual reality (VR). So, when there is an audit process in that company, the management and auditor will be able to access real time data directly from the system attached to the operational activities. Transparency and accuracy of the data then can be easily confirmed.

These accounting transformation in industry 4.0 demands new competencies for accountants. Since the usual work done by the accountants is now done by technology, therefore accountants need to update their abilities. Shi [3] stated that in the industry 4.0 accountant should recognize the needs of their own skills improvement and functional transformation, actively change the resistance to artificial intelligence, understanding the intelligent accounting software, and own the mentality of tolerance. With these abilities, accountant would survive its business in providing accounting services.

The demand of new competencies for accountant will affect the learning pattern of accounting students. Referring to the formulation of Learning Directorate of Indonesian National Qualifications Team (2015), university and its graduates must be prepared (in addition to human literacy) to have data literacy skills such as; reading, analyzing and using information in big data and technology literacy [4]. The combination of human literacy, data and technology is estimated to be the sufficient weapon in facing industry 4.0.

In industry 4.0 the role of human beings in business process gradually decreases. The fewer role of human beings means the less human values is involved. Human values and ethics must be maintained in order to keep the trust of society towards the accounting profession. Ethical behavior of accountants is the foundation for stakeholders to obtain valid information about the company [5]. The lack of professional ethics can give a misleading information of the financial reports [6]. Therefore, ethics is one of the important subject that educational institutions need to provide for students as future accountants.

According to Mintz [7] ethics education should prepare accounting students to become professionals by instilling in them values of independence, objectivity, integrity, and professional skepticism. Educational system that emphasize on integration of values and ethics in the curriculum will prevent the unethical and unworthy manners in accounting profession [8]. Accounting students as future accountants need to be equipped with an understanding of ethics in the hope that they will later not take actions that harms the image of their profession.

Hence the critical needs in integrating ethics in the curriculum, educators did not fully practiced it in accounting courses. Accounting technical related skills if often prioritize rather than accounting ethics [9]. Albrecht and Sack (2000) as cited by Bay and Felton [10] criticizes the traditional accounting education which is lack of values, ethics, and integrity.

The lack of ethics and values in accounting courses is possibly caused by the difficulties faced by accounting educators. Ahmad [8] in her research found that several obstacles faced by educators in implementing ethics in the curriculum are time constraints, lack of knowledge about ethics, abilities and competencies, and lack of material references that can be used in teaching accounting ethics.

This condition needs to be urgently reviewed and provide with solution, because by not teaching ethics accounting educators promote another value-that ethics education is not important [7]. Various studies have been conducted as an effort to improve the quality of teaching ethics to students. Els [11] stated that accounting education should provide a foundation for lifelong learning which requires a thorough grounding in the professional knowledge, skills, values, ethics and attitudes.

Therefore, the purpose of our paper is to present an updated profile of accounting faculty opinions concerning ethical education in accounting programs. This study aims to understand the perception of accounting lecturers regarding the importance of integrating ethics in accounting courses in industry 4.0 and also the willingness of accounting lecturers to teach ethics in their subjects. Additionally, this study aims to determine the learning methods used by accounting lecturers to teach ethics in accounting courses. The next goal is to understand the supporting factors and the obstacles faced by educators in integrating ethics to the subjects taught. This research was conducted at Malang State Polytechnic majoring in Accounting.

II. METHOD

The type of this research is descriptive qualitative research, which describe the facts of a condition to be examined. In this research the condition examined was the teaching conditions of ethics in accounting courses. The location studied was the Accounting Department of the State Polytechnic of Malang.

The population in this study was lecturers in the Accounting Department of State Polytechnic Malang. The number of samples in the study was selected using purposive sampling with the criteria; lecturer teaches accounting courses

and able to provide in-depth and detailed information about the teaching methods delivered in class.

The technique used was survey method, through questionnaires and interviews. Interviews were conducted to informants (lecturers who teaches accounting courses) to obtain information relating to the learning model applied to incorporate ethical content. The questionnaire used in this study was adopted from Ahmad [8], then developed by researcher by adding questions that could enrich the results of the study.

III. ANALYSIS AND DISCUSSION

The research is intended to explore and understand the perception of lecturers in accounting courses regarding the importance of integrating ethics into accounting courses. This research also aims to understand the learning methods to teach ethics, factors that can support lecturers to integrate ethics in accounting courses, and also the difficulties faced by lecturers to integrate ethics in accounting courses.

The were 16 questionnaires collected and analyzed, and then some respondents were selected for follow-up interviews, with the criteria that respondents could provide more in-depth and detailed information. The respondents chosen were 4 respondents, which in this research mentioned Bu Hesti, Bu Fathim, Pak Hari, and Bu Annisa.

The triangulation process is done by giving questionnaires randomly to 10 final-year students with questions about whether they have received ethics education in their accounting subjects or not. The result was all students answered that they have received ethic education, but not for all accounting course. Students stated that learning ethics is an important thing for them as one of the competencies needed for being a professional accountant.

A. *Educators Perception Regarding the Importance of Ethic Education in Accounting Courses in Industry 4.0*

The result of this study showed that all respondents stated the integration of ethics in accounting courses is crucial related to industry 4.0. The use of advanced technology in accounting process have led to a whole new level of fraud possibilities. This risk needs to be prevented by providing sufficient ethical education to students. The importance of integrating ethics in accounting courses are discussed as follows:

1) *Uncertain condition in industry 4.0*, Industry 4.0 will bring us to a new situation where there will be new risks on business conditions. The results of the interview with Mrs. Hesti stated as follows:

“The needs of ethics is becoming more crucial because industry 4.0 conditions are still biased and new. Ee don't know what risks will occur. It is like a new area for fraud. If students are equipped with good ethical understanding, they will have better ability to classify whether certain action is ethical or not”.

2) *Formulated in the curriculum*, Ethics is important to be taught in accounting courses because it is already formulated in the curriculum, which means it is an obligation

for lecturers to teach the topic. Ethics is one of the competencies that is expected to be achieved in each subject, although there are no reports about whether it is done or not, nor the obligation to report the scores of students' ethics.

Based on the answer of one participant, Mrs. Fathim, the latest "Pekerti" (training program for teaching and learning) trains lecturers the ways to integrate ethics in college courses.

3) *Degrading ethics of students*, Nowadays with the development of technology, humans are more focused to the value of money and wealth but ignoring norms and humanity. Respondent Mrs. Fathim said that,

"Now it cannot be denied, our behavior when we were in college was different from the behavior of college students in this millennial era.

Being smart is not enough ... but it requires good ethics in order to adapt to the environment. People can learn the knowledge, but bad morals and ethics are difficult to fix. Ethics and morals must be consistently carried out well".

4) *Morale responsibility of the lecturers*, Respondents have the awareness that the task of lecturers is not only to deliver knowledge, but also to shape the students' ethical character.

Mrs. Annisa said,

"I want to instill character education to my students. Not only accounting knowledge, but also tell my students the right thing to do".

5) *Providing ethical knowledge for entering the accounting profession*, Mrs. Fathim stated that,

"...when an employee wants to apply to a company, what is needed first is not the competence of the related field, but ethics. For example, there is a company that says an employee has poor competence, we should recognize what the company means about the competence; whether the employee really has bad knowledge about their job or has bad attitude in learning something new. In teaching the students, we can not just focus on cognitive and psychomotor ability, but also affective ability".

All respondents perceive that ethics need to be inserted in accounting courses with the above reasonings. One reason discussed above is that lecturers are aware that they have moral responsibility rather than only teaching knowledge, but also give character education to students. This moral responsibility shows that the respondents have professionalism in their work [12]. Professionalism is shown by the awareness they have to give whole understanding about accounting to the students, and not only teach skills and knowledge.

Although all respondents have the same opinion about the importance of integrating ethics in accounting subjects in industry 4.0 era, they have different opinions regarding the proportion of the ethics content. Some argue that ethics should be taught in each subject in several chapters discussed. Whereas some other respondents stated that there was no need to convey ethics in each subject, but for just a few courses such as Introduction to Accounting and Auditing. This is because

according to them, for more complicated subjects it is better to focus on students' understanding of the subject matter.

B. Methods to Teach Ethics in Accounting Courses

Previous studies showed that ethical education has influence on ethical actions carried out by an individual [13,14]. Nevertheless, lecturers find difficulties during the process of delivering ethics in accounting courses. Els [11] stated that the lack of effective integration of ethics content into the full curriculum is because teachers are not feeling qualified or confident to teach ethics, and the lack of materials used in ethics courses.

Ethical teaching method is continuously developed by researchers to answer this problem. Therefore the respondents were asked to explain about the methods they used to teach ethics in accounting courses. The answers are summarized as follows:

1) *Inserting ethics in the topics discussed*, Respondent Bu Fathim who teaches Management Information System explained that,

"In almost all chapters in my subject discuss loopholes in systems. We learn how to prevent it. When discussing the loopholes, we can give a statement that actually as a system developer it is very easy to cheat because we know what area contains loopholes ... But instead we should keep professionalism at work, and be a part of preventing it from happening".

Respondent Mrs. Hesti teaches Cost Accounting, and gives examples in how ethics is inserted in the subject she teaches as follows;

"For example, how to determine the inventory method will affect the financial reporting, (then) how to secure the inventory owned by the company... All of that actually relates to how to avoid fraud, so we have explicitly discuss about ethics in that subject.

I try to clearly explain why we must calculate the cost of good sold which is one of the purposes is for accountability. Accountability is also one form of ethics, so getting students to understand that everything they learn in cost accounting is related and cannot be separated from ethics.

Other example is when we discuss defective goods in companies. The defective goods value should be calculated, reported, even if the value is not material. Defective goods are actually companies' rights, so if employees sell it for their personal benefit, it has actually violated ethics".

2) *Discussion about ethical cases*, Mrs. Annisa explained that, "During class meetings I include stories discussing ethics related to the subject, also values or norms that apply in the community because not all students understand or care about it. With having this discussion, I hope that I can help my students to develop good mental and perspective. "

Mrs. Fathim explained,

"Sometimes the material from the textbook does not explain about ethics related to the subject. So, we can take a

case from an article or journal as a material for discussion with students".

The ability of a lecturer to incorporate ethics into the accounting courses requires a deep understanding of the subject. The lecturer needs to understand not only about the knowledge but also the reasons behind it; what the calculations are made for, what impact, what loopholes can occur, so that ethics can be inserted in the teaching process.

One of the respondents, Mrs. Annisa, suggested that lecturers who are asked to teach the same course several semesters will have time to deepen understanding so that they can integrate ethics into their teaching. Whereas lecturers who are given different courses each semester do not have time to have deeper understanding of the subject, but only teach the theories.

C. Factors that Encourages Accounting Educators to Teach Ethics

There are factors that encourage educators in teaching ethics. Limijaya [9] stated that the effectiveness of accounting ethics education does not rely only on having proper teaching materials and methods, but also on the institutional support and the learners' commitment.

Based on the interview conducted in this study, factors that can encourage educator to teach ethics is explained as follows:

1) *Support from the academy*, The support needed from the management faculty is by always reminding the lecturers to not only teach techniques but also give character education to the students. This can be followed by giving trainings about the ability to teach ethics, also providing literature which has ethics content in each subject.

2) *Formulated in the curriculum*, Kerangka Kualifikasi Nasional Indonesia (KKNI) demands the bachelor graduate to have good attitude and morality, the ability of problem solving, continuous self development, communication skills and managerial skills. This demand gives motivation to lecturers to give ethics education to students.

3) *Demand from companies to qualify students with ethical values*, Several companies annually conduct a meeting with the lecturers to give input about the qualification needed for students that are going to be their employee. Mrs. Fathim explained that, "companies gave their employee evaluation points based on honesty, integrity, while the competence in other field was considered after the ethical values are scored (i.e. the ability to uses computer systems, the ability to speak foreign language, etc.)". This demand would encourage lecturers to give ethic education to their students. If the faculty is able to produce graduates that is qualified with the companys' needs, the faculty would be able to maintain good relationship with companies.

D. Difficulties in Incorporating Ethics Into Accounting Courses

Although the lecturers feels it is necessary to include ethics in accounting courses, the amount of ethics taught is not

optimal. Some lecturers only teach ethics in auditing and management accounting subjects. While the others thought that the amount of ethic taught was not enough and should be increased. This is due to some difficulties faced, which are explained below:

1) *Time constraints*, There are limited time to teach with a long list of subjects need to be taught in a classroom. This makes the lecturers difficult to spare time to discuss about ethics.

2) *Literature used doesn't discuss about ethics*, There are lots of accounting literature that does not discuss about ethics. This makes the lecturers lack of ideas to bring out the discussion about ethics.

Mrs. Hesti suggest that "literature used in accounting courses should discuss ethics in each chapter. In fact, in each chapter ethics is only discussed implicitly. For example, in cost accounting it is explained that the value of waste material is sufficiently significant, so that there is a tendency of cheating from employees to take the waste material, even though it should add to the company's income". From this brief explanation there is an ethic value delivered, but no further discussion about it.

IV. CONCLUSION, SUGGESTION AND LIMITATION

Ethic education is highly relevant in industry 4.0. This new era where new forms of fraud can occur must be anticipated with strong understanding of ethics. To prepare this condition there should have a commitment between the government, faculties, companies and lecturers.

The Government as policy makers should create regulation regarding the proportion of ethics taught that is recommended in accounting courses, so that lecturers will be more easily to adjust their teaching methods. While faculty needs to provide training for educators about the ways to teach ethics in accounting courses, also give support by continuously reminding lecturers to teach ethics.

Companies should contribute to the curriculum by routinely give information to the faculties on the importance of ethics for accountants. While lecturers should have the commitment and efforts to integrate ethics in the accounting subjects taught.

The method used to teach ethics is by integrating ethics in the subjects taught. In teaching a subject, lecturers need to have deep understanding about why certain calculations are made, why the reports are made for, what impact do they give, and what loopholes can occur. By understanding so, ethics can be easily integrated to the subject.

The limitation of this study is the respondent, which is in one faculty in Polytechnic State of Malang, with only 4 interviewed respondents. Further study can use different respondent in various universities to identify whether the same condition occurs in other places or not. The topic of inserting ethics into accounting subjects can also be a recommended future research, since this study found that lecturers are still having difficulties regarding the ways to bring up ethics discussion in the accounting subjects taught.

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