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The Effects of Intelligence, Emotional, Spiritual and Adversity Quotient on the Graduates Quality in Surabaya Shipping Polytechnic

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Abstract: This research aims to analyze the effects of intelligence quotient, emotional quotient, spiritual quotient, and adversity quotient on the graduates quality of vocational higher education. Data were collected from 217 cadets at Surabaya Shipping Polytechnic who already took an internship as respondents using stratified cluster random technique. This is a correlational and quantitative study using a questionnaire developed from several existing scales and analyzed using Structural Equation Models (SEM) to determine the path of effects and to create the best structural model of intelligence-based graduates quality (IESA-Q). The results indicate that there are direct and indirect effects of intelligence quotient, emotional quotient, spiritual quotient, and adversity quotient on graduates quality, meaning that each quotient has a positive effect on graduate's quality. The process to create the professional and ethical quality of Surabaya Shipping Polytechnic graduate is dominated by Emotional Quotient (25,2%) and Spiritual Quotient (21,4%), while Intelligence Quotient (IQ) becomes the support as it effects the development process of all quotients, Emotional Quotient (EQ), Spiritual Quotient (SQ), and also Adversity Quotient (AQ). Therefore, based on the findings of this study, the student acceptance requirements are emphasized on IQ and EQ as a basis to develop other quotients in order to generate graduates with good quality. Learning is designed on IQ, EQ, SQ, AQ to control and to evaluate process and product outcomes.

Keywords: *Intelligence quotient, emotional quotient, spiritual quotient, adversity quotient, graduates quality.*

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Introduction

Qualified graduates are not only characterized by high intellectual competence but also their skills and social competencies (Hoy & Miskel, 2008; Minarti, 2011). Graduates should also be able to meet the accountability standards set by stakeholders or companies who employ them (Hoy et al., 2000). The Consortium Indonesian Manning Agency (CIMA) estimated that in 2017, there was an oversupply of Indonesian seafarers with 74,000 officers and 46,000 sailors for a total of 120,500. There were 398.000 seafarers consisting of 188.000 officers and 210.000 sailors, but only 277.500 seafarers made it into shipping companies (Maulana, 2017).

The data prove that Indonesian seafarers are not totally absorbed in shipping companies, nationally and internationally (Subaidi, 2017). Indonesian seafarers hardly compete to foreign seafarers mostly because of their lack of competencies and expertise. Underqualified seafarers can jeopardize shipping performance, as well as the company's reputation. Graduates' absorption is one of the education benchmarks especially in terms of both educational quality and the graduate's quality. By the time, this condition induces many educational institutions to generate qualified graduates.

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Surabaya Shipping Polytechnic is one of the shipping vocational higher education institutions managed by the Ministry of Transportation to graduate seafarers according to the Human Resources of the Transportation Department missions which are to graduate high-qualified graduates with physical excellence, professional (mastering the theoretical and practical knowledge) and ethical at works. Surabaya Shipping Polytechnic is tasked to graduate reliable and professional seafarers who do not only master theoretical and practical knowledge but also are discipline, tough, respect, friendly, responsible, are able to cooperate and communicate, as well as have an attitude of service. Surabaya Shipping Polytechnic graduates are considered to be graduates who have enough knowledge and mastered technology, while verbal and nonverbal communication skills, teamwork and interpersonal skills, and self-regulation still need to be improved. The ability to increase motivation independently also still needs to be improved (Puspitacandri, 2018).

Evidence shows that Indonesia's education is more focused on hard skills which occupy a greater portion of knowledge and technical skills than soft skills and development programs. Meanwhile, demands in the working world are not merely aspects of Intelligence, it demands on other aspects as well. This creates a gap between the needs of the working world (companies) and the availability of human resources graduated (Ministry of Research, Technology and Higher Education, 2016).

Quality refers to intellectual and manual skills, powers of reasoning and analysis, values, attitudes and motivation, creativity, communication skills, sense of social responsibility as well as an understanding of the world (Muhaimin et al., 2010; Samani, 2011). The ability to reason and analyze a person is inseparable from the role of one's Intelligence Quotient (IQ). Villagonzalo (2016) measured intelligence and found that there was a significant positive relationship between Intelligence Quotient and student academic achievement. However, despite having a high IQ, many people fail, it shows that there are other aspects that affect one of them is Emotional Quotient (Goleman, 2002). Gondal and Husain (2013), Suharso (2015) and Wibowo (2015) argue that both Intelligent and Emotional Quotients (EQ) have a positive relationship to performance. Hence, high EQ will produce better performance (Agustian, 2008; Boyatzis et al., 2002; Chermis, 1998; Sarwono, 2009).

Spiritual Quotient (SQ) is a new concept that presents to complement the function and role of both Intelligence and Emotional Quotients. According to Wiersma (2002), SQ affects a person in his goal of developing his career and life. According to Trihandini and Fabiola (2005), there is a significant effect of SQ on employee performance. SQ allows individuals being able to see the meaning contained in every life's events and to interpret every activity as a belief. Having done things with worshipping minds, individuals can carry the tasks responsibly (Tasmara, 2001). By then, one's attitudes, words, and actions definitely refer to moral values, truth, justice, and goodness.

Individuals will face various challenges in work-life, such as competition and productivity demands. Barrick (2001) mentions that humans with high personal endurance (conscientiousness) show persistent character, systematic, unyielding, resistant to workloads, and highly motivated. Stoltz (2007) introduced a new quotient, the Adversity Quotient (AQ), in 2000. According to him, AQ is the science of human resilience in facing difficulties and the ability to overcome life's challenges. Huijuan (2009) and Effendi et al. (2015) find that AQ is a predictor of student achievement and has a significant relationship with student academic performance. Furthermore, Bautista (2015) mentions that AQ has a significant relationship with one's work performance, as the higher AQ one is, the better a person's work performance becomes. A person's ability to seize opportunities and respond to existing challenges allows someone to have the opportunity for developing their career. Difficulties encountered during work will be viewed as challenges that create motivation.

According to previous studies and findings, researchers assume that the quality of Surabaya Shipping Polytechnic graduates will increase in line with the increase in their IQ, EQ, SQ, and AQ. Therefore, this research aims to determine the effect of each quotient on the graduates quality, the magnitude of each quotient effect in generating qualified graduates, and the effect of each quotient to analyze the model of the quality of intelligence-based graduates. By knowing the effect of each quotient on the graduates quality, it is expected to be a reference in the quality improvement programs through creating an effective program by focusing on each intelligence that has a greater effect on the graduates quality as well as adding more portions in development programs.

Literature Review

Intelligence Quotient

Intelligence Quotient (IQ) is an individual's ability to employ knowledge and experience not only to solve problems directly encountered but also to anticipate future problems. Freeman defines intelligence into three ways, namely 1) intelligence is interpreted as the ability of adaptation, meaning that an intelligent person is able to deal with various changes in life accordingly; an intelligent person has many possible responses and ability to organize their behavior creatively; 2) intelligence is defined as an ability to learn, meaning that the more intelligent a person is, the wider and greater the potential one becomes especially in enriching knowledge and skills; and 3) intelligence is defined as an abstraction ability meaning that individual's ability to use concepts and symbols effectively (Azwar, 2017; Freeman, 1992; Prabu, 1993; Sagala, 2010).

The smarter a person is, the more able the individual is to capture the implicit meaning, conduct synthesis analysis, and work with numbers. Individuals can solve problems by using verbal facilities, symbols, and rational thinking. Wechsler views intelligence as a collection of various abilities possessed by someone who possibly assists oneself in the process of thinking, acting, and adjusting effectively to the environment (Azwar, 2017). Amthaeur argues that the abstraction ability, thinking, logical relations, or theoretical concept is a total unity of ability called intelligence (Polhaupessy, 2009).

Emotional Quotient

According to Mayer and Salovey (2011), emotional quality supports one's success. Emotional Quotient is an ability to recognize, manage, and express emotions relating to oneself and others, as well as an ability to motivate oneself (Bar-On, 2002; Casmini, 2007; Mayer & Salovey, 2011). While Singh (2006) describes Emotional Quotient as an individuals' ability responding to various emotional stimuli arising from within an environment appropriately and successfully. Emotional Quotient has three psychological dimensions, namely emotional sensitivity, emotional maturity and emotional competence. A person with a high Emotional Quotient is able to monitor and control ones feelings and use them to guide both thoughts and actions. Therefore, one is able to manage stressful situations calmly and proactively (Gujral, 2013; Kumar & Rooprai, 2009; Patton, 2002). EQ is a strength for professionals who have to face a high emotional burden (Zeidner, et al., 2004). Under stressful conditions, a person is often unable to think logically and use his intellectual potential. By it, stress can be reduced and one can calm their own mind resulting in one's ability to think logically.

Spiritual Quotient

Spiritual Quotient is an intelligence perfecting the concepts of both Intelligence and Emotional Quotients (Zohar, 2007). Spiritual Quotient allows individuals to align emotion, feeling, and mind to express and give meaning to each action (Zohar & Marshall, 2000).

Spiritual Quotient is an ability to access the individual's deepest meanings, values, goals, and motivations. This ability refers to how one depicts a God-minded attitude in every behavior and activity (Kurniasih, 2010; Zohar & Marshall, 2004). In addition, it allows an individual to not only perceive what is right or wrong, which is right or false, and what is real or fake but also becomes responsible in making decisions and actions according to the truth, justice, and happiness.

Spiritual Quotient is intelligence on the human soul. Spiritual intelligence provides the ability to see positive values in every problem and the wisdom to deal with problems (Khavari, 2006). Individuals with high spiritual quotient carry the values of spirituality at work so they are more resistant in dealing with stress and more hardly defeated when failing (Chakraborty & Chakraborty, 2004; Hoffman, 2002). SQ supports an individual both physically and mentally. Furthermore, SQ creates a positive mental attitude so one becomes easier to see the opportunities and happier to walk on life. SQ is also able to boost individuals' performance (Haji et al., 2013; Widodo, 2015).

Adversity Quotient

Adversity Quotient (AQ) was first put forward by Stoltz as one of the factors determining success (Stoltz, 2000). AQ sees an individual's ability to survive, how far one can face and to what extent one can deal with the problems. In addition, it categorizes individual characteristics into how well one overcomes difficulties, which groups exceed the expectations or those who fail (Stoltz, 2019). Moreover, Barrick (2001) mentions that high-endurance individuals are characterized as superior human resources. Personal endurance is showed through one's persistent, unyielding, resistant (to workloads), and highly motivated. Adversity Quotient allows someone to seize and respond to opportunities and existing challenges to develop a career. For some people, difficulties become challenges that bring up work motivation which leads to a positive work ethic and initiatives. Conversely, there are others who see difficulty as an obstacle and lower their motivation which often leads to despair. This kind of people prefers to avoid, reject, or even stop while facing problems.

Graduates Quality

The government regulation of the Republic of Indonesia No. 19 of 2005 on National Education Standards states that on the Graduates' Competency Standards, the qualifications of graduates' abilities include attitudes, knowledge, and skills in accordance with the vision and mission of Human Resources Agency (HRA profile of the Ministry of Transportation, 2017). It explains that the educational institutions have to always improve the quality of education and training as well as graduates to generate professional, physically fit and ethical graduates. Human Resources Agency (HRA) of the Ministry of Transportation in Regulation No. 2 of 2018 establish that the outputs of Surabaya Shipping Polytechnic are physically fit is related to the physical condition and health of cadets, while professionalism is related to working mastery both in knowledge and skills. Ethics related to performance or non-academic work attitudes (soft skills) that necessarily owned by cadets. In addition, there are seven non-academic competencies that should be achieved by cadets, namely integrity, work ethic, initiative, communication, cooperation, interpersonal relations, and adaptation.

Method

Researchers used a quantitative approach with a correlational research design. This research is one that uses a model to look for the relationships among variables in which each refers to previous theories and findings. The researchers conduct the preliminary stage by determining the background to specify the model based on theoretical studies and using SEM to identify the model. After the preliminary stage, the researchers collected data and the last stage is the data analysis stage; here, researchers analyze all data collected using SEM, estimate the model, evaluate the model, and modify or revise the model. Data processed and analyzed are concluded based on the formulation of the existing problem (Latan & Ghozali, 2013).

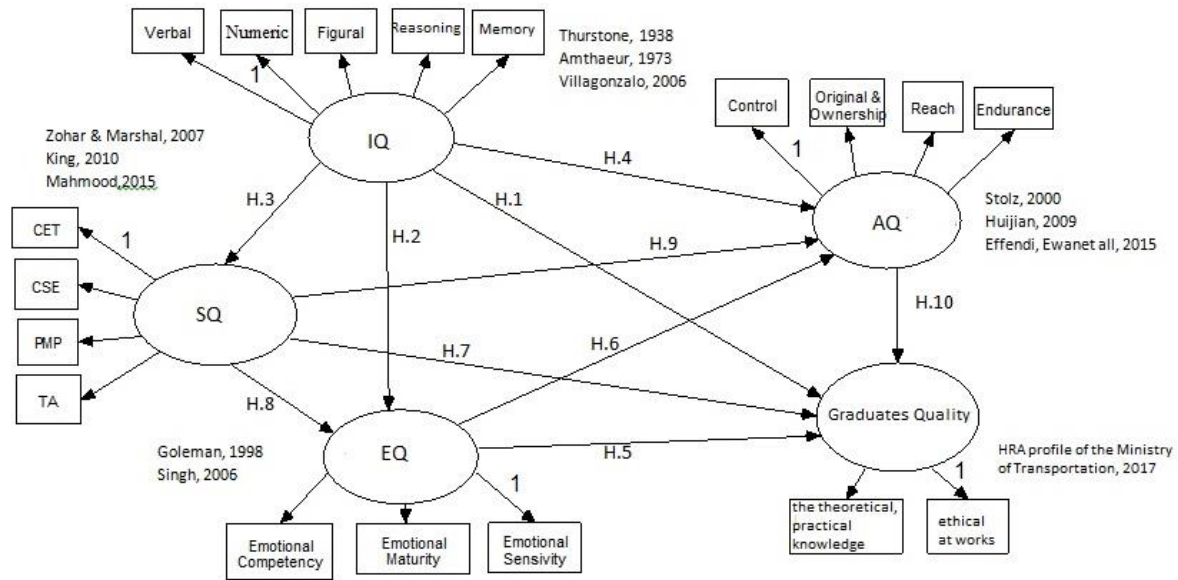


Figure 1. Initial Structural Model

Figure 1 is a structural model proposed in this research. It consists of an exogenous variable (intelligence quotient) and four endogenous variables (emotional quotient, spiritual quotient, adversity quotient, and graduates quality).

Operational Definition of Latent Variables

Intelligence quotient (IQ) is a collection of one’s ability to act with specific goals, to think rationally, and to deal effectively to their environment, with indicators of verbal ability (IQ1), numerical ability (IQ2), figural ability (IQ3), reasoning (IQ4), and memory association (IQ5).

Emotional quotient (EQ) is the individuals’ ability to respond appropriately and successfully to various emotional stimuli arising from the inner self and the environment, with indicators of emotional competency (EQ1), emotional maturity (EQ2), emotional sensitivity (EQ3).

Spiritual quotient (SQ) is an ability to access the deepest meaning, values, goals, and motivation with indicators of Critical Existential Thinking (CET) (SQ1), Conscious State Expansion (CSE) (SQ2), Personal Meaning Production (PMP) (SQ3), and Transcendental Awareness (TA) (SQ4).

Adversity quotient (AQ) is an ability as a benchmark to conceptually determine human responses in the face of adversity and life challenges; hence, it produces effective and professional improvements with indicators of Control (AQ1), Origin and Ownership (AQ2), Reach (AQ3), and Endurance (AQ4).

Graduates Quality (GQ) is the result of hard or soft skills learning achieved by cadets who complete their education at a certain level and are able to meet or exceed the Human Resources Agency (HRA) standards set the Ministry of Transportation, with indicators of physical excellence and professionalism (GQ1) including knowledge and practical skills; while ethics has divided into seven soft skills namely integrity (GQ2), work ethic (GQ3), initiative (GQ4), communication (GQ5), cooperation (GQ6), interpersonal relationships (GQ7), and adaptation (GQ8).

*Hypotheses**Table 1. Research Hypotheses*

Hypotheses	Information
H1	Intelligence Quotient has a direct positive effect on Graduates Quality
H2	Intelligence Quotient has a direct positive effect on Emotional Quotient
H3	Intelligence Quotient has a direct positive effect on Spiritual Quotient
H4	Intelligence Quotient has a direct positive effect on Adversity Quotient
H5	Emotional Quotient has a direct positive effect on Graduates Quality
H6	Emotional Quotient has a direct positive effect on Adversity Quotient
H7	Spiritual Quotient has a direct positive effect on Graduates Quality
H8	Spiritual Quotient has a direct positive effect on Emotional Quotient
H9	Spiritual Quotient has a direct positive effect on Adveristy Quotient
H10	Adversity Quotient has a direct positive effect on Graduates Quality

Population, Sampling, and Sampling Technique

According to Joreskog and Sorbom (2002) sampling is based on the number of variables that will be observed in a model. In this study using 5 variables to be observed, the minimum sampling required is 200; however it is suggested to take Maximum Likelihood (ML) with the number of sampling are around 100 to 200 (Ghozali, 2014). Considering both experts, researchers decided to take 217 of 298 cadets of three majoring (Nautic, Engineering, and Electronic) who took internship in a shipping company as respondents using stratified cluster random technique.

Instrument

The instrument measurements used in this research must be both reliable and valid. Therefore, researchers employed the Intelligenz Structure Test (IST) developed by Amthaeur (1973) to measure intelligence quotient (IQ); the test employed was developed by Singh (2006) to measure emotional quotient (EQ); the Spiritual Intelligence Self-Report Inventory (SISRI-24) developed by King (2013) to measure spiritual quotient (SQ); the Adversity Quotient Profile 10.0 developed by Stoltz and Grant (2019) to measure adversity quotient (AQ); The professional quality of graduates (theoretical and practical knowledges) is seen from the GPA, while the ethics quality of graduates is revealed through a questionnaire (using Likert scale method). The questionnaire is arranged based on seven soft skills competencies from HRA Profile of the Ministry of Transportation.

Data Analysis

This research was conducted to examine the effects among variables to further mapped it into the model. The data were analyzed using Structural Equation Modeling (SEM) with the AMOS program. The reliability tests and composite reliability were conducted to test the reliability of the analysis/data and the confirmatory factor analysis (CFA) to construct validity, discriminant validity for multicollinearity treatment, descriptive analysis, correlation, and structural equation modeling analysis was used to test the validity of the results. In SEM analysis, the steps were divided into CFA analysis, exogenous and endogenous measurement analysis, discriminant analysis, composite reliability analysis, direct-indirect-impact analysis (mediating effect), as well as the fit for the hypothesized and re-specified model tests.

Results*Respondent Profile*

Cadets have an average intelligence quotient as many as 93.1%. The data shows that 88.5% of cadets have no difficulty working on problems with figural abilities. Have no difficulty working on problems with reasoning questions at 85.2%. However, the ability to work on problems with the numerical ability of cadets is only 69.2%. Mostly cadets have a high emotional quotient. They have very high emotional competence (61.3%) and 41.9% of them have high emotional maturity. 32.3% cadets have a good Spiritual quotient and 44.7% of them have high score on the Personal Meaning Production. For the adversity quotients, cadets have a low score of 49.3%, a sufficient score of 28.6% and a high score of 22.1%. The indicator that has highest frequency is the Endurance (33.6%). In addition, in ethical quality, cadets are proven to be good in communication and collaboration skills 74.7%. Cadets have a GPA (3.14-3.51) of 91.7%, which shows professional quality in the satisfactory category.

Descriptive Analysis of Research Constructions

In this research, composite (construct) reliability with a cut-off value is a minimum of 0.7 is used to calculate the reliability of the results. The results show that each variable has a Cronbach's Alpha value above 0.7 and each indicator of the p variance of error values are less than 0.05 meaning that all variables and indicators are reliable.

Table 2. Statistic Descriptive Variables

Variables	Reliability Composite
Intelligence Quotient	0.823
Emotional Quotient	0.811
Spiritual Quotient	0.900
Adversity Quotient	0.878
Graduates Quality	0.911

Confirmatory Factor Analysis

This analysis is often called as the validity of a theoretical construct test (Ghozali, 2014). Confirmatory analysis is intended to test whether the indicators or manifests are valid in order to measure the latent constructs.

Latent Variable Measurement of Intelligence Quotient (IQ)

The factor loading values of five indicators are 0.604 (IQ1), 0.902 (IQ2), 0.629 (IQ3), 0.796 (IQ4), and 0.504 (IQ5). Each indicator has a factor loading value higher than 0.5 with p significance (0.000) is less than α (0.05) in the regression weight. Statistically, all five indicators are significant in measuring Intelligence Quotient.

Latent Variable Measurement of Emotional Quotient (EQ)

The factor loading values of three indicators are 0.862 (EQ1), 0.665 (EQ2), and 0.766 (EQ3). Each indicator has a factor loading value higher than 0.5 with p (0.000) is less than α (0.05) in the regression weight. Statistically, all indicators are significant in measuring Emotional Quotient.

Latent Variable Measurement of Spiritual Quotient (SQ)

The factor loading values of four indicators are 0.878 (SQ1), 0.871 (SQ2), 0.671 (SQ3), and 0.893 (SQ4). Each indicator has a factor loading value higher than 0.5 with p (0.000) is less than α (0.05) in the regression weight. Statistically, those four indicators are significant in measuring Spiritual Quotient.

Latent Variable Measurement of Adversity Quotient (AQ)

The factor loading values of four indicators are 0.823 (AQ1), 0.789 (AQ2), 0.683 (AQ3), and 0.892 (AQ4). Each indicator has a factor loading value higher than 0.5 with p (0.000) is less than α (0.05) in the regression weight. Statistically, those four indicators are significant in measuring Adversity Quotient.

Latent Variable Measurement of Graduates Quality (GQ)

The factor loading values of eight indicators are 0.502 (GQ1), 0.732 (GQ2), 0.822 (GQ3), 0.767 (GQ4), 0.847 (GQ5), 0.814 (GQ6), 0.741 (GQ7), and 0.744 (GQ8). Each indicator has a factor loading value higher than 0.5 with p (0.000) is less than α (0.05) in the regression weight. Statistically, those four indicators are significant in measuring Graduates Quality.

Goodness of fit index

Eight criteria used to assess whether a model is feasible or not are good and adequate meaning that the initial model is considered to fit and does not require modification. The data show there is a correspondence between the theoretical quality of Graduates and empirical models in the field. From Figure 2 and table 3 the GFI index is 0.901 (or higher than 0.90) and the CMIN/DF value is 1.339 (or less than 2.00) meaning that the model is considered fit and has no difference between theoretical and empirical models. In other words, the structural models support the empirical ones.

Table 3. Goodness of Fit Structural Model

Criteria	Cut - Off Value	Calculation Result	Note
Chi - Square	Expected to be lower	293.306	χ^2 to df = 219 is 254.523 Adequate
Significance Probability	≥ 005	0.001	Adequate
RMSEA	≤ 0.08	0.040	Good
GFI	≥ 0.90	0.901	Good
AGFI	≥ 0.90	0.864	Adequate
CMIN/DF	≤ 2.00	1.339	Good
TLI	≥ 0.90	0.969	Good
CFI	≥ 0.90	0.976	Good

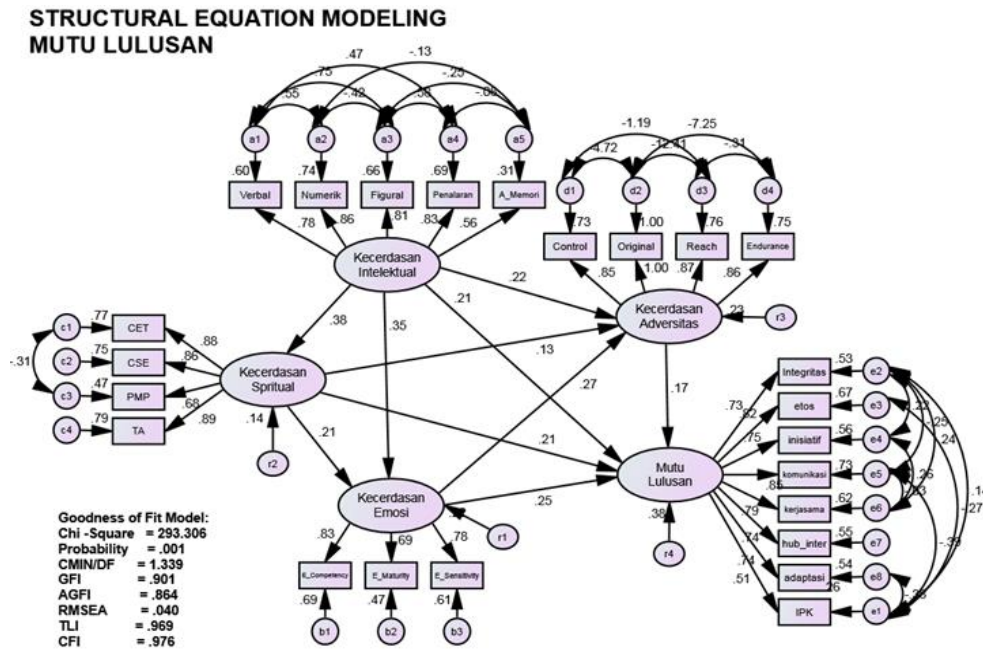


Figure 2. Fit Structural Model

Hypotheses Test Results

Hypothesis test results indicate that there is a positive and significant effect of intelligence quotient on the graduates quality ($\beta = 0.207, P = 0.005$) meaning that hypothesis 1 is accepted. In addition, the results also show that there is a positive and significant effect of intelligence quotient on emotional quotient ($\beta = 0.348, P = 0.000$) meaning that hypothesis 2 is accepted. Furthermore, a positive and significant effect of intelligence quotient are found on spiritual intelligence ($\beta = 0.378, P = 0.000$) and adversity quotient ($\beta = 0.218, P = 0.003$) meaning that hypotheses 3 and 4 are accepted.

Meanwhile, a positive and significant effect of emotional quotient is found on both graduates quality ($\beta = 0.252, P = 0.001$) and adversity quotient ($\beta = 0.268, P = ***$), meaning that both hypotheses 5 and 6 are accepted.

Similarly, a positive and significant effect of spiritual quotient is found on graduates quality ($\beta = 0.214, P = 0.002$) and emotional quotient ($\beta = 0.205, P = 0.009$), meaning that both hypotheses 7 and 8 are accepted. However, as there is no significant effect on spiritual quotient on adversity quotient ($\beta = 0.125, P = 0.054$), hypothesis 9 is rejected.

Lastly, a positive and significant effect of adversity quotient on graduates quality ($\beta = 0.175, P = 0.006$) is found, thus hypothesis 10 is accepted.

Table 4. Direct Effect of Fit Structural Model

Exogenous Variable	→	Endogenous Variable	Std Estimate	C.R.	Probability	Description
Intelligence Quotient	→	Graduates Quality	0.207	2.831	0.005	Significant
Intelligence Quotient	→	Emotional Quotient	0.348	4.020	0.000	Significant
Intelligence Quotient	→	Spiritual Quotient	0.378	4.787	0.000	Significant
Intelligence Quotient	→	Adversity Quotient	0.218	3.011	0.003	Significant
Emotional Quotient	→	Graduates Quality	0.252	3.201	0.001	Significant
Emotional Quotient	→	Adversity Quotient	0.268	3.499	***	Significant
Spiritual Quotient	→	Graduates Quality	0.214	3.142	0.002	Significant
Spiritual Quotient	→	Emotional Quotient	0.205	2.602	0.009	Significant
Spiritual Quotient	→	Adversity Quotient	0.125	1.924	0.054	Insignificant
Adversity Quotient	→	Graduates Quality	0.175	2.725	0.006	Significant

Mediating Effect

There are three ways to determine significance; by looking at the value of c.r in the regression weights table, and by looking at the indicator probability value smaller than 0.05; and by looking the value of factor loading or parameter lambda (λ) greater than 0.5 (Hair et al., 2010).

Intelligence quotient through mediating spiritual quotient has a direct effect on emotional quotient (0.078). Intelligence quotient through mediating emotional and spiritual quotients has a direct effect on adversity quotient (0.161). Intelligence quotient through mediating emotional, spiritual, and adversity quotients has a direct effect on graduates quality (0.255). Emotional quotient through mediating adversity quotient has a direct effect on the graduates quality (0.047). However, spiritual quotient does not directly affect the adversity quotient, but it effects the adversity quotient by mediating the emotional quotient (0.055). Spiritual quotient through the emotional and adversity quotients mediation has a direct effect on graduates quality (0.083).

Table 5. Direct, Indirect, Total Effect

Independent Variables	Dependent Variables	Direct	Indirect	Total
Intelligence Quotient	Emotional Quotient	0.348	0.078	0.426
Intelligence Quotient	Spiritual Quotient	0.378	-	0.378
Intelligence Quotient	Adversity Quotient	0.218	0.161	0.379
Intelligence Quotient	Graduates Quality	0.207	0.255	0.461
Emotional Quotient	Adversity Quotient	0.268	-	0.268
Emotional Quotient	Graduates Quality	0.252	0.047	0.299
Spiritual Quotient	Emotional Quotient	0.205	-	0.205
Spiritual Quotient	Adversity Quotient	0.125	0.055	0.180
Spiritual Quotient	Graduates Quality	0.214	0.083	0.297
Adversity Quotient	Graduates Quality	0.175	-	0.175

Discussion

The graduates quality is effected by Emotional Quotient (EQ) of 25,2%, Spiritual Quotient (SQ) of 21,4%, Intelligence Quotient (IQ) of 20,7%, and Adversity Quotient (AQ) of 17,5%. This study finding of the concept to improve the quality of intelligence-based graduates both professionally and ethically by developing individual Intelligence, Emotional, Spiritual, and Adversity Quotients.

The process of building professional and ethical quality of Surabaya Shipping Polytechnic graduates was mostly contributed by EQ (25.2%) and SQ (21.4%), while IQ has effect in developing both EQ and SQ, and also AQ. Emotional Quotient (EQ), Spiritual Quotient (SQ), and Adversity Quotient (AQ) are not determined naturally but it is nurtured developed through learning. In the learning process, one should have good learning competence and leveled IQ to predict own mastery. Intelligence Quotient emphasizes the learning ability, as the more intelligent a person is, the more likely one is to be educated and has a better ability to learn. Therefore, the hypotheses 2, 3, 4 are accepted meaning that IQ has a direct and positive effect on EQ, SQ, and AQ.

IQ has a direct effect of 20.7% on the graduates quality and indirect effect of 25.5% on the graduates quality or has the total effect of 46.2% meaning that IQ, combined with other quotients, has a higher effect on the graduates quality than when it sole effect on the graduates quality. Previous studies showed similar findings that Intelligence Quotient has a significant relationship with academic and work performance graduates (Haji et al., 2013; Mahmood et al., 2015; Pande, 2012; Trihandini & Fabiola, 2005; Villagonzalo 2016). This study also found that Intelligence Quotient not only made it easier for someone to learn material according to the majors in school, but also made it easy for someone to learn the attitudes, values and ethics taught during education. Said and Rahmawati (2018) showed similar finding that as the more intelligent a person is, the more the ethical attitude.

Based on the discussion, it is concluded that this research supports previous findings that argue on whether IQ is not the sole determinant of success and is not the only solution to daily problems. These findings indicate that although IQ intelligence is not the only determinant in affecting the graduates quality, it serves an important role to guarantee the success as it affects other determinants (EQ, SQ, and AQ) greatly. By combining all determinants, the graduates quality is going to be guaranteed especially in terms of professionalism and ethics.

IQ has effected the development of EQ, SQ and AQ. However, the analysis shows that IQ has less effect on AQ (compared to EQ). EQ has an effect on AQ of 26.8%, while SQ does not have direct effect on AQ. Therefore, it means that EQ is one of the factors (quotients) needed to affect the AQ. Empirical data shows that the work ethic, communication and teamwork are the biggest formers of graduate quality. EQ plays a role to build relationships to create adaptability and flexibility in society or the working environment (Bar-On, 2006). Pursun and Efiltili (2019) found that EQ did not predict the areas of intrapersonal intelligence. Others found that emotional intelligence increased the individuals ability to manage his own feelings, to show positive attitude and communication in social relations, and to understand others feelings (Goleman, 2009; Singh, 2006). EQ is an ability that can be used to face challenges, change, uncertainty, and conflict (Patton, 2002). Therefore, EQ can be used to adapt to different environments quickly and self motivation. From self-motivation, a part of EQ, allowed graduates to manage and reduce the pressures of emerging problems; thus, the graduates are more likely to be optimistic and able to survive in all-round conditions (good or bad). Ngui and Lay

(2020) showed similar finding that EQ had a significant relationship with self-efficacy. Goleman (2002) said that emotional conditions often cause a person unable to use his intellectual work optimally, thus making a person unable to think and make appropriate decisions. The ability to identify and use emotion is important as they deal with the daily task.

In the educational context, the graduates' quality can be realized through good student management. Student management is the whole process of activities including planning, deliberate efforts and continuous coaching (from enrolling to graduating). Therefore, the scope of student management includes educational inputs, processes and outputs (Arcaro, 2005). Educational inputs consider as good if they are ready to proceed and able to create active, creative and enjoyable learning atmospheres.

Input in student management is related to the student admission process where one of them is by determining the conditions of student admission. The results show that the student acceptance requirements are emphasized on IQ and EQ as a basis to develop other quotients in order to generate good graduates quality.

The findings indicated that professional quality (knowledge and skills) minimally affects the graduates quality of 0.51, while the ethical quality of communication, work ethic, and cooperation affect the graduates quality of 0.85, 0.82, and 0.79 respectively meaning that working to increase ethical choices in students enhances the graduates quality. This shows that the accountability standards set by stakeholders (as employers) are not only oriented to professional quality but even more to the ethical quality.

Finally, to form qualified graduates, Surabaya Shipping Polytechnic should be oriented not only to teaching and learning activities in the academic (hard-skills) but also to teaching soft-skills development programs especially in EQ, SQ, and AQ development. It is important that learning is designed on IQ, EQ, SQ, AQ to control and evaluate process and product outcomes.

This finding is in line with the opinion of Spencer and Spencer (2004), Muhaimin et al. (2010), and Samani (2011) who stated that the quality of graduates obtained through quality education can be to graduate students who excel in both academic and non-academic competencies based on life skills, including personal and social competencies as well as moral values. By then an individual with an integrated personality who is able to synthesize faith, knowledge, and charity can be formed.

The process in student management is the student transformation stage during their school times including its learning program, curriculum, and evaluation instruments/methods. The soft skills development program oriented to EQ, SQ, and AQ development can be included in preliminary activities such as orientation, guidance, and counseling as well as soft skill development special activities. The development program is an implied theory by Stoltz (2000), Buzan (2002), Singh (2006), Yusuf (2006), Gujral (2013) who define that EQ, SQ, and AQ can be developed through systematic modeling, guidance, teaching, and training in schools.

Teaching and training processes provided by schools can refer to Bloom's learning concept that divides it into three domains, namely intellectual abilities (cognitive) emphasizing knowledge and thinking skills; affective domain emphasizing feeling, ethical values, motivation, and attitude; and psychomotor emphasizing action. In other words, teaching not only is oriented to provide knowledge through seminars but needs to provide a touch of affective and training assignments that aim to train and hone their knowledge and skills in order to make them easily using their intelligence and competence. By increasing IQ, EQ, SQ, and AQ, the graduates' quality can be improved significantly.

Conclusion

The results of this research lead to the finding of the concept to improve the quality of intelligence-based graduates both professionally and ethically by developing Emotional Quotient (EQ) of 25,2%, Spiritual Quotient (SQ) of 21,4%, Intelligence Quotient (IQ) of 20,7%, and Adversity Quotient (AQ) of 17,5%. In addition, the results found factors affecting graduates quality. By empirical evidence, it showed that the four variables studied have a direct or indirect effect on graduates quality. The process to create the professional and ethical quality of Surabaya Shipping Polytechnic graduates is dominated by Emotional Quotient (EQ) and Spiritual Quotient (SQ), while Intelligence Quotient (IQ) becomes the support as it effected the development process of Emotional Quotient (34,8%) and becomes the support as it effected the development process of Spiritual Quotient (37,8%).

Therefore, the findings of this study suggested that graduates quality cannot be separated from the input stage to the educational process. Inputs related to student recruitment processes; accordingly, the recruitment process should highly emphasize on Intelligence Quotient (IQ) and Emotional Quotient (EQ). It is necessary to determine the conditions for graduating student selection by establishing the students' Intelligence Quotient (IQ) in the recruitment process by applying an average IQ score (90/91) as a standard minimum score to determine the applicants' acceptance with the score is the minimum standard a person is able to learn to help students in terms of knowledge and mastery of technology (hardskill). IQ also will highly affect their further development of Emotional Quotient (EQ), Spiritual Quotient (SQ), Adversity Quotient (AQ).

Another factor that needs to be considered as well in the recruitment process is the applicants' emotional stability. Good emotional stability, a person will be able to manage his emotions and stress well so that his intellectual competence can be used optimally to learn and develop other intelligence.

Another factor to be considered is the educational process which is related to learning programs, facilities and infrastructures, curriculum, evaluation, etc. The research finds that professional quality (knowledge and skills) has less effect on graduates qualities than ethical quality (communication, work ethics, and cooperation). Finally, to create qualified graduates quality, educational institutions should be oriented not only on teaching and learning activities in the academic (hard-skill) but also on the need for soft skills development programs (oriented to develop EQ, SQ, and AQ).

Emotional Quotient, Spiritual Quotient, and Adversity Quotient can be developed through systematic modeling, guidance, teaching, and training in schools and families. Thus, family and school become factors that have a role in developing those Quotients. To provide academic education and character building, schools have to prepare a program referred to graduates' character building through IESA-Q-based.

Continuous guidance needs to be done by creating a character development program that stimulates the development of students' intelligence, emotions, spiritual, and adversity through seminars, workshops, and other experiential learning periodically and continuously throughout the semester with clear and measurable soft skill achievements. Therefore, it should be formulated in the curriculum, outputs, instruments, and evaluation methods.

There were limitations of this study which could have contributed to the extent of findings of this study. This study used a sample of cadets at Surabaya Shipping Polytechnic and not specifically separate the quality of graduates from the professional and ethical dimensions in the process of analyzing data, so that the direct and indirect effect on each dimension of graduate quality was limited. Furthermore, studies should examine the graduates quality from each dimension and increase the number of samples and sampling places in some of the shipping vocational higher education institutions managed by the Ministry of Transportation, so that the results are more representative in answering the graduates quality model within the Ministry of Transportation.

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