

Investigating students' online exam anxiety and culture on self-efficacy

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Abstract: This study was aimed to examine the moderating role of coping strategy in online exam anxiety and culture on students' self-efficacy. The research population was the students of Faculty of Economics who have taken two years of online learning and online exam. By using the proportionate random sampling technique, the research sample of 228 students. The data collected using a questionnaire were analysed using Moderated Regression Analysis (MRA). The results show that coping strategy weakened the relationship between anxiety and student self-efficacy during online exams. On the other hand, coping strategy can strengthen the relationship between culture and self-efficacy. In managing coping strategy, students pay attention to function-problem-focused coping and emotion-focused coping. Function-problem-focused coping is the ability of individuals to focus on solving the stress problems they experience during the exam. Emotion-focused coping is the ability of individuals to focus on managing their emotions during online exams. Self-efficacy in online exams (in the context of learning outcomes assessment) need to be studied in more detail.

Keywords: *online exam anxiety, student culture, coping strategy, self-efficacy*

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INTRODUCTION

The World Health Organization (WHO) March 2020 declared the novel coronavirus (COVID-19) outbreak a global pandemic threatening human life worldwide. A lockdown was implemented, and people started to do activities from home. This circumstance had some impact on people. They were experiencing decreased self-efficacy, anger, confusion, anxiety, and post-traumatic stress (Brooks *et al.*, 2020). The pandemic had a gradual physiological, psychological, and emotional impact resulting in a level of hopelessness leading to confusion and high anxiety levels (Roy *et al.*, 2020). The pandemic also impacted various sectors, such as social, political, economic, and educational (Cao *et al.*, 2020). The education sector got a huge blow, so they had to do online learning from home. Schools and colleges were delaying academic schedules and migrating to virtual teaching and learning platforms. Educational problems were increasing, exacerbated by evaluating learning outcomes through online methods (Talidong, Toquero, Joy, Mae & Philippine, 2020).

The Minister of Education and Culture of the Republic of Indonesia has officially instructed schools to carry out online learning since March 17, 2020. Readiness for online learning, such as facilities and infrastructure, teacher skills in using technology, and online learning platforms, were identified to achieve learning objectives. Teachers and lecturers were required to be able

to use technology. Likewise, students and parents play an essential role in the success of online learning activities. Various studies have been conducted to analyze the impact of online learning from the mental side (Yang *et al.*, 2020). However, not many have studied self-efficacy.

When assessing learning outcomes, various conditions could often affect students' psychology, such as internet network problems, anxiety during exams, or exam results submission. The results of a preliminary survey of students of the Faculty of Economics, Universitas Negeri Semarang, in May 2021, showed that online learning impacted learning evaluation. The survey results of 200 students showed that 45.25% said they were highly anxious and nervous, 29.50% said they were anxious and nervous, and the rest 25.25% said they were not anxious and nervous. Anxiety or nervousness experienced by students psychologically would determine self-efficacy. The student stated that he was not confident in his ability to take online exams.

Self-efficacy is an individual's belief in his ability to complete a job. (Bandura, 1982; Zimmerman, Bandura, & Martinez-Pons, 1992) define self-confidence as an individualistic factor that signifies belief in an individual's ability to organize and carry out the actions needed to produce the desired achievement. Self-efficacy studies in the assessment of learning outcomes need to be studied further. Especially now that learning is done virtually, the assessment will follow.

The results showed that student anxiety had an unfavourable impact on student self-efficacy. Students had a high level of anxiety in taking exams, which affected their confidence in answering exam questions (Arora, Chaudhary, & Singh, 2020). Other research also states that students' online learning self-efficacy decreases because the environment is not conducive (Hodges, 2008). Factors influencing student self-efficacy in online learning include anxiety (Deer, 2018; Wheaton & Abramowitz, 2012; Roick & Ringeisen, 2017) and coping strategies (Hsieh, Sullivan, Sass, Norma & Guerra, 2012; Arora, Chaudhary, & Singh, 2020, 2020; Yang *et al.*, 2020). The recommendation from the research (Arora, Chaudhary, & Singh, 2020) is to examine the cultural aspects of online learning outcomes assessment.

Students feel anxious, afraid, worried, and uncomfortable with online exams. Anxiety here is divided into two: coronavirus anxiety and online exam anxiety. The latter is related to self-efficacy. Students experience anxiety about the coronavirus in the form of trauma and worry (Roy *et al.*, 2020). This worry and trauma have a negative effect on student efficacy (Arora, Chaudhary, & Singh, 2020). Furthermore, online exam anxiety also forms low self-efficacy (Joshi & Vinay, 2020). Especially if there is an internet signal interference that results in the inability to collect exam results on time (Fischer, Lundin, & Lindberg, 2020) if that condition happens multiple times, it will affect student self-efficacy.

Students have different concepts of anxiety. Online exam anxiety is considered a situation-specific form of anxiety and is often associated with poor academic performance (Chapell *et al.*, 2005) and mental and physical health concerns (Lowe, Urquhart, Greenman & Lowe, 2000). Previously, exam anxiety was seen as a driving force for students. The students who experienced anxiousness were seen as irrelevant and tended to avoid it, resulting in self-efficacy and poor academic performance. Not only that, but students with high anxiety also feel distracted, restless, and have restless behaviour in online exam situations (Nottelmann, 1975).

The two-way theory of exam anxiety explains that anxiety can have both debilitating and facilitating properties. The theory facilitates anxiety and motivates a person (Siswanto, Kartanagara, & Chuan, 2021) to perform well in exams, weakening anxiety while, on the

other hand, causing avoidance behaviour. Facilitating anxiety has been shown to positively affect task-related behaviours such as preparing for exams ahead of time and increasing focus during exams (Juita, Zulfa & Edial, 2019). On the other hand, debilitating anxiety causes an increase in thoughts and affects behaviour that is irrelevant to exams. They avoid studying and experience self-deprecating thoughts. Thus, facilitating anxiety enhances student performance, while debilitating anxiety inhibits student self-efficacy and academic performance (Raffety, Smith, & Ptacek, 1997).

In online learning, students and lecturers are faced with the use of technology from various cultural backgrounds that students have (Tamami & Kusumawati, 2020). Culture plays a vital role in the student's honesty in conducting online exams during the pandemic. Culture can also be related to self-efficacy. Students from China, Vietnam, Taiwan, and America provide more colors in forming student self-efficacy (Lim & Lim, 2007; Thi, Phan, & Locke, 2016). The culture referred to in this study is the habit and obedience to the rules that apply in the community where they live.

Several research studies have noted how cultural variables affect students' self-efficacy and behavioural orientation. First, collectivist values, such as affecting more family and social groups. The influence is related to achievement behaviour and belief in one's abilities (Lim & Lim, 2004). Culture can form self-confidence in learning. Asian students are more attribution-oriented, and learning goals are characterized by increased self-efficacy and learning outcomes compared to American students (Klassen, 2004). Other studies also claim that Asian cultures view learning as a process of self-improvement by seeking lifelong commitment, persistence, resilience from adversity, and concentration. In contrast, Western cultures emphasize students' thinking processes and psychological characteristics, such as learning styles and intelligence (Thi *et al.*, 2016).

Student culture can be incorporated into a text-based collaborative virtual environment to encourage collaboration and awareness of intercultural communication, including exploration of self-identity or self-confidence (Raybourn, 2000). Culture will support students to facilitate communication, self-efficacy, and collaborative learning outcomes. Distortion of communication can arise due to different modes of communication among individuals from different cultural backgrounds (Young, 2008). Therefore, a mode appropriate to each culture's characteristics, in general, is needed. Student culture is proven to increase student self-efficacy when taking online exams with various communication modes.

From another mental perspective, coping strategies can moderate the relationship between anxiety, culture, and student self-efficacy in online exams (Hsieh *et al.*, 2012; Chen *et al.*, 2020). The way students adjust to the demands of higher education, especially in online learning, can be a source of stress, which can have a negative impact on motivation and achievement (Pritchard & Wilson, 2003). From another mental point of view, coping strategies can moderate the relationship between anxiety, culture, and student self-efficacy in online exams (Hsieh *et al.*, 2012; December 2020). Coping strategies can affect academic success because the number of effort students put into achieving specific outcomes depends on how they cope with negative emotions and obstacles. Their beliefs also influence the level of effort and how students deal with stress about how capable they are and how much they can control the results achieved (Devonport & Lane, 2006).

Although academic coping strategies (and the relationship between coping strategies and other variables) have not received much attention, adaptive coping strategies may be

crucial for college students during a pandemic. Further, coping can affect academic success because students have confidence in their ability to achieve specific results depending on how they overcome negative emotions and obstacles (Devonport & Lane, 2006). Their beliefs also influence the level of effort and how students cope with stress about how capable they are and how much control they have over outcomes. Coping models include approach and avoidance strategies, with the expectation (Sullivan, 2010) that these variables will be positive (i.e., approach) or inversely (i.e., avoidance) concerning self-efficacy, goal mastery, and self-regulation. Positive results can be achieved when people take action and strategize to achieve goals rather than sitting still or avoiding situations.

Coping can also moderate culture and self-efficacy. The individualism-collectivism dimension has been widely used to categorize culture (Zhao, McCormick & Hoekman, 2008). Collectivists generally prefer, or are expected to maintain closer relationships with groups such as relatives, friends or colleagues than individualists. At the cultural level, the state can be placed along the collectivism-individualism continuum (Thi *et al.*, 2016). Behaviour patterns consistent with individualism and collectivism vary regarding values, beliefs, or norms in social contexts that influence individual behavioural preferences. For example, the relative importance given to in-groups and out-groups is a significant factor that distinguishes individualistic and collectivist cultures (Leung & Bond, 1984).

Coping consists of strategies used to regulate stressful emotions determined by culture (Raybourn, 2000). The concept of coping relates to how to cope with the response to threats/stressors. The coping approach is a behavioural, cognitive, and emotional activity directed at a threat (e.g. seeking information and solving problems). In comparison, avoidance is directed at cognitive activity away from threats such as denial and self-efficacy. Function-problem-focused treatment involves strategies that include action on the environment or self (seeking support from others or cognitive restructuring).

This study empirically examines the moderating role of coping strategies in anxiety and culture on students' self-efficacy in online exams. Theoretically, this research contributes to social cognitive theory in which a concept of self-efficacy can provide success for an individual in achieving good academic performance. Self-efficacy is an individualistic factor that signifies belief in the individual's ability to organize and carry out the actions needed to produce the desired achievement. In addition, it can be used as a decision-making material for the proper online learning evaluation technique according to the characteristics of students. Further, this research can also be used as evaluation material for online learning in general so that it does not deviate from the learning objectives. The novelty of this study is to examine cultural variables in terms of individualism-collectivism dimensions, where individual habits and the role of the environment can form beliefs in completing work. In addition, there are still not many studies examining psychological factors for anxiety and coping strategies to eliminate the errors and discomfort in online learning outcomes assessment.

METHOD

This study was quantitative, emphasizing the analysis of numerical data or numbers obtained by statistical methods and performed in inferential research or the context of testing hypotheses so that the significance between the variables is acquired. The population was students of the Faculty of Economics, Semarang State University (UNNES), who took the online exam in the even semester of 2021 (996 students). All had taken online learning for

two years (2020 and 2021). The sampling technique was proportionate random sampling so that the sample was collected from several classes, namely Management, Accounting, Development Economics, and Economic Education (228 students in total). Questionnaires were distributed using Google Forms.

The independent variables in this study were online exam anxiety (X1) and student culture (X2). Meanwhile, coping strategies (Z) was the moderating variable, and self-efficacy was the dependent variable (Y). Anxiety is a fundamental phenomenon and a central nervous problem (Hong, 2019). It is a complex emotional state that may vary in intensity over time due to intrapsychic or situational reasons affecting the individual (Talidong *et al.*, 2020). Anxiety also consists of feelings of tension, fear, worry, and increased activity of the autonomic nervous system. Online exam anxiety is a complex reaction or emotional state in individuals when taking online exams. The indicators are fear, anxiety, nervousness, and insecurity.

Coping strategies are fundamental processes defining how a person detects, assesses, handles, and learns from stressful situations. Coping strategies are conscious efforts to regulate emotions, cognitions, behaviour, physiology, and the environment in response to stressful events or circumstances. Decades of research focused on measuring individual differences and correlations of coping have shown that it can either maintain or exacerbate the effects of stress, hopelessness, and fear on a person's mental and physical health. A simple coping strategy collects possible responses to a stressful situation. They are cognitive restructuring, problem-solving, information seeking, emotional ventilation, avoidance, distancing, acceptance, support, and social rejection (Mick & Fournier, 1998). The research investigates coping strategies from two perspectives based on function-problem-focused coping and emotion-focused coping (Booth-Butterfield & Wanzer, 2018).

The individualism-collectivism dimension has been widely used to categorize culture (Zhao *et al.*, 2008). The culture referred to in this study is the habit and obedience to the rules that apply in the community where they live (Zhao *et al.*, 2008). Furthermore, self-efficacy is the belief in one's ability to organize and carry out the necessary actions to produce the desired achievement (Bandura, 1982; Wiggins, 1967). Everything a person believes can be done with existing skills and abilities, not with their basic skills (Nadelson, 2006). Furthermore, self-efficacy is the belief in one's ability to complete a job. The indicators are academic self-efficacy and emotional self-efficacy. The indicators are function-problem-focused coping and emotion-focused coping.

This study uses statistical analysis to answer research questions. Data were collected using questionnaires and documentation. Questionnaires were used to explore respondents' responses to the variables (anxiety, student culture, coping strategies, and self-efficacy). Documentation was used to obtain data on the number of students taking online learning for two semesters. Hypotheses were tested by analyzing and testing empirical models. This study used descriptive analysis to find out and explain the general description of the respondents and the description of the variables. Respondents were identified descriptively using data trend analysis, such as age, gender, and educational background.

Furthermore, inferential analysis, Moderated Regression Analysis (MRA), was employed. Hypothesis testing is performed to test the causal relationship hypothesized in the proposed conceptual model using a one-tailed/one-sided/one-way hypothesis approach stated in the direction of the relationship or difference in value/level. The rule of hypothetical decision-making is that if the p-value < 0.05, the hypothesis is accepted, and vice versa.

FINDINGS AND DISCUSSION

Based on the results of the validity and reliability tests, the instrument was declared valid and reliable. Furthermore, linearity, multicollinearity, and heteroscedasticity tests were performed. Based on the linearity test result, the p-value (asymptotic, Sig. 2-tailed) is 0.530 > 0.05. Therefore, the regression model has met the assumption of normality. Based on the multicollinearity test result, the p-value linearity (sig.) of 1,000 > 0.05 so that a linear relationship between the independent and dependent variables is proved to exist. Therefore, it has met the assumption of linearity. Then, based on the heteroscedasticity test, the VIF value for all independent variables is less than 10. It is proved that the independent variables are free from heteroscedasticity because the significance value is > 0.05.

The summary of hypotheses tests in Table 1 points out that online exam anxiety influences students' self-efficacy. Likewise, cultural variables do affect self-efficacy. Moderation results imply that the coping strategies successfully moderate the relationship established with anxiety in the online exam. Moderation is to weaken students' self-efficacy. On the other hand, coping strategies can strengthen the relationship between culture and self-efficacy.

Table 1
Hypotheses testing results

Hypothesis	Relationship between Variables		Path Coeff.	P-value	Description
	Explanatory Variable →	Response Variable			
H ₁	Online exam anxiety (X ₁)	Self-efficacy (Z)	0.194	0,001 < 0,05	Significant
H ₂	Student culture (X ₂)	Self-efficacy (Z)	0.505	0,000 < 0,05	Significant
H ₃	Interaction (X ₁ *Z)	Self-efficacy (Z)	-0.271	0,321 > 0,05	Moderate (weaken)
H ₄	Interaction (X ₂ *Z)	Self-efficacy (Z)	1.175	0,049 < 0,05	Moderate (strengthen)

The first hypothesis (H₁), a negative relationship between online exam anxiety and self-efficacy exists, is *accepted* (p-value of 0.001 < 0.05). The second hypothesis (H₂), namely that there is a positive relationship between student culture and self-efficacy, is also *accepted* (p-value of 0.001 < 0.05). Then, the third hypothesis (H₃), namely coping strategies moderate the relationship between online exam anxiety and self-efficacy so that the negative relationship between anxiety and efficacy will be weaker, is *accepted* (p-value 0.321 > 0.05). The fourth hypothesis (H₄), namely coping strategies moderate the relationship between student culture and self-efficacy so that the negative relationship between culture and efficacy will be stronger, is *accepted* (p-value 0.049 < 0.05).

Online exam anxiety is related to self-efficacy. Students often feel anxious; they tend to be disturbed and deal with burdensome stress (Wang *et al.*, 2013). Exam anxiety is considered specific anxiety in certain situations and is commonly correlated with terrible academic performance (Chapell *et al.*, 2005) and mental and physical health (Lowe *et al.*, 2000). Students have various concepts of exam anxiety in multiple ways. Exam anxiety

was previously seen as a measure of motivation. Anxious students will not have adequate self-efficacy, and they are in bad academic performance instead. Also, students with high anxiety are agitated all along the exam (Nottelmann, 1975).

Arising anxieties are fear, worry, nervousness, and insecurity when facing online exams. Students are frequently afraid of the inability to hand the exam in on time. Also, they are worried that the uploaded file is not sent or is spontaneously damaged. Nervousness usually occurs when lecturers watch using zoom meetings or online exam LMS. Then, students feel insecure whenever they cannot answer questions thoroughly and correctly. Everything happens to every student. Thus, there needs to be an understanding of their anxiety; no intervention is allowed during the online exam activities.

The universal symptoms of anxiety are reflected in psychology, art, religion, and other life aspects. Anxiety theories are psychoanalytic, physiological, existential, behavioural, and cognitive. The psychoanalytic theory considers anxiety a daily phenomenon and an explanation for neuroses (Furr, McConnell, Westefeld, & Jenkins, 2001). The two-way theory of exam anxiety elaborates that anxiety can have both debilitating and facilitating properties. In this context, facilitating anxiety motivates a person to perform excellently on exams. Debilitating anxiety, in turn, causes avoidance behaviour. Facilitating anxiety has been shown to positively affect task-related behaviours such as preparing for exams ahead of time and increasing focus during exams. Meanwhile, debilitating anxiety triggers an increase in thoughts and influences irrelevant exam behaviour. Students eventually avoid studying and experience self-deprecating thoughts.

Another school of thought is a phenomenological/existential theory. Anxiety is considered a natural state of a person at every point. Another anxiety category comes from research exploring the dimensions of learning and cognition because individuals learn to avoid unpleasant stimuli through mediating mechanisms, namely fear or anxiety (Wheaton & Abramowitz, 2012). In other words, the threat of discomfort can cause anxiety and lead to new behaviours. Anxiety is a fear whose source is unknown or suppressed. As in this study, anxiety among students is considered caused by online exams.

Student culture can create self-confidence in taking online exams. This study's cultural indicators are students' habits and obedience to norms. When online exams are held, students get used to entering the online exam room early, praying, and obeying the exam conditions under the lecturer's instructions. The exam agreement results from lecturers' and students' discussions. Both must comply with the provisions that have been set. This study is in line with the results of research on Asian students, where students are more oriented toward attribution and learning objectives—characterized by increased self-efficacy and learning outcomes compared to Americans (Klassen, 2004). Other studies claim that Asian cultures view learning as a process of self-improvement by seeking lifelong commitment, persistence, resilience from adversity, and concentration. Meanwhile, Western cultures emphasize students' thinking processes and psychological characteristics, such as learning styles and intelligence (Thi *et al.*, 2016).

Student culture might be incorporated into a text-based collaborative virtual environment. This way, it can encourage collaboration and awareness of intercultural communication, including exploration of identity or self-confidence (Raybourn, 2000). Culture will assist students in facilitating communication, self-efficacy, and collaborative learning outcomes. Distortion of communication can arise because of the different modes of communication

among individuals due to distinctive cultural backgrounds. Therefore, a robust, general, and appropriate model for the characteristics of each culture is needed (Young, 2008). Culture is proven to increase student self-efficacy when taking online exams with various communication modes.

Coping strategies play an essential role in strengthening student culture. The individualism-collectivism dimension has been applied extensively to categorize culture. In general, collectivities can maintain closer relationships with groups such as relatives, friends, or colleagues than individualists. The state can be positioned at the cultural level along the collectivism-individualism continuum (Thi *et al.*, 2016). Consistent behaviour patterns under individualism and collectivism-vary regarding values, beliefs, or norms in social contexts that suborn individual behavioural preferences. The existing culture in the student environment shapes the continuity of implementing coping strategies.

Individuals of all ages can experience stress and will implement various ways to relieve it. The physical and emotional tension accompanying stress causes discomfort, prompting individuals to engage in coping efforts. Coping strategies also play a notable role in reducing anxiety. Coping is a process in which a person tries to regulate the perceived difference between desires (demands) and income (resources) that are valued in a stressful event or situation (Hsieh *et al.*, 2012).

In managing coping strategies, students pay attention to two things, namely, function-problem-focused coping and emotion-focused coping. Function-problem-focused coping is the ability of individuals to focus on solving the stress problems they experience during the exam, such as personal problems with parents, peers, and the internet network. Meanwhile, emotion-focused coping is the ability of individuals to focus on managing their emotions when online exams are held. Those emotions are anger, hate, sadness, and so on. Coping strategies can be appropriately managed if the individual is highly resistant to stress. Besides, an individual must also have a relaxed mind to face all challenges.

Although academic coping strategies (and the relationship between coping strategies and other variables of interest) have not received much attention, adaptive coping strategies may be urgent for college students during the pandemic. In addition, Devonport and Lane (2006) suggests that coping strategies can affect academic success because students are confident in their ability to achieve specific results depending on how they overcome negative emotions and obstacles. Their beliefs also influence the level of effort and how students cope with stress about how capable they are and how much control over the outcomes they possess. Coping models include approach and avoidance strategies, with the expectation that these variables will be positive (approach) or negative (avoidance), in terms of self-efficacy, goal mastery, and self-regulation (Sullivan, 2010). Positive results can be achieved when people take action and strategize properly rather than sitting still or avoiding situations.

CONCLUSION

The results show that coping strategies successfully moderate the relationship between anxiety and self-efficacy. Moderation debilitates student self-efficacy. On the other hand, coping strategies can strengthen the relationship between culture and self-efficacy. The direct relationship indicates that student anxiety affects self-efficacy negatively. Students with high anxiety about exams will be influenced; their confidence gets impacted, and so do the

learning outcomes. The direct relationship also proves that culture influences self-efficacy. Student culture from the individualism-collectivism dimension provides the foundation for students to conduct online exams to form confidence in their abilities.

The study results suggest the need for other empirical studies related to student self-efficacy during online exams. Other undissected variables, such as learning styles and student ethics, have to be investigated comprehensively so that they do not reduce the essence of learning evaluation by lecturers.

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