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Striving for the brighter future: An experience of high school students as earthquake victims

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ABSTRACT

High school students' experienced negative emotions caused by the earthquake that strucked Sigi District, Central Sulawesi, Indonesia. In addition to overcoming negative emotions, they were faced with deciding on a career decision. For this reason, this research aimed to determine the effect of Future Time Perspective (FTP) on Career Decision Self-Efficacy (CDSE) of 141 students from six high schools. Simple regression indicated that FTP positively affected the CDSE of high school students. Moreover, using multivariate regression analysis on FTP and five dimensions of CDSE, we found that FTP contributes positively and significantly to the five dimensions of CDSE. Therefore, the research implied that FTP based intervention program is able to promote CDSE.

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1. INTRODUCTION

In Sigi District, Central Sulawesi, Indonesia in spite of what had happened, earthquakes still frequently occur, although the magnitude of the earthquake is not as strong as former earthquake that occurred in 2018. Although the magnitude of the earthquake that occurred is not as strong as the 2018 earthquake, the people feel fear, sadness, and anxiety. It is because, when the earthquake struck they were reminded of the earthquake that occurred before. This occurrence triggered factors in the emergence of negative emotions [1-3] even though the earthquake did not occur or occur with small magnitude scale [4].

In the aftermath of the earthquake, the earthquake victims affected themselves and their families [5]. Naturally, they will protect and save themselves from threats related to the existence of earthquakes [5]. That is because they maintain their lives and have difficulty valuing their lives [5]. Then, to maintain this survival, earthquake victims will follow a strategy to obtain opportunities to improve the quality of life after the earthquake [6]. This was done so that victims could be recovered at the condition post-earthquake.

Concerning with positive psychology, to overcome negative emotions, it should emphasize the positive aspects (e.g., positive emotions) [7]. Positive emotions are characterized by broader individual behaviors and thoughts, while negative emotions have a tendency of belief in individuals with narrower behaviors and thoughts [8]. Positive emotions contribute to the recovery of negative emotions [8-10]. Individual who is experiencing sadness will make him more positive and optimistic about the future. One of the things that suggest how an individual possesses positive behavior and open-mindedness is the presence of orientation towards the future and optimism to face the future [7, 11].

Furthermore, during the focus group discussion, high school students expressed their perspectives in facing the future that the future should be fought with optimism [12]. They also said that their first priority is how to become the student who excels, works, makes money, and saves money they have earned [12]. Their skills and achievements during the learning process under the guidance of the teacher will be aligned with their socioeconomic background and future career achievements [13]. Furthermore, to accelerate recovery after a devastating earthquake, high school students are advised to improve their abilities and skills; one of which is to focus on the future and career planning in the next period [14]. This is one of the tasks that must be addressed, because it is related to the future of high school students in actualizing themselves [14]. Thus, high school students who are victims of an earthquake are also faced with a career selection situation [6].

The FGD's result indicated that high school students have a time orientation towards the future. In this case, the future orientation of high school students is how they finish their studies and planning on a career after they graduate. High school students are at a stage of developing career planning [15]. They are faced with deciding a career that interests them. Confidence in their ability to decide on a career is known as Career Decision Self-Efficacy (CDSE) [16]. On the other hand, individual orientations towards the future affect their CDSE [17-20]. An individual orientation towards time is known as Future Time Perspective (FTP) [21]. FTP is one of the characteristics of human perspective on time, which is one of the dimensions on the construct of time perspective.

The basic concept of career decision self-efficacy stems from Bandura, and he initially analysed human thought and behaviour [22, 23]. To explain the analytical framework, Bandura outlined the concept of Social Learning Theory [23]. According to Bandura [23], his theory is focused on the role of vicarious or observational learning [24], symbolic, and the process of self-regulation. Thus, Social Learning Theory is an explanation of human behaviour based on reciprocal interactions between cognition, behaviour, and the environment [23], so that the behaviour of an individual is not only driven by factors within the individual (inner driven) and environmental influences [23].

Social Learning Theory furthermore known as Social Cognitive Theory by Bandura [25]. Social Cognitive Theory, by Bandura [25], covers psychological phenomena beyond issues related to learning and conditioning. Lent, Brown, and Hackett [22] developed the concept of Social Cognitive Career Theory (SCCT). The SCCT positions the direct effect forthwith the antecedents of career selection goals and actions [26], including career decisions. In addition, self-efficacy is not directly related (Indirect effect) with the mediator variable expectations of outcomes and interests [26]. Thus, the core of SCCT is the development of the concept of self-efficacy associated with the career domain. The SCCT developed in literature and career development research aims to find out some elements that affect the development of self-efficacy and expected outcomes (outcome expectation) [27, 28]. In short, SCCT refers to the role of career self-efficacy in adolescent career planning and development [28].

Furthermore, Betz and Hackett found two categories in career self-efficacy, namely: content and the career decision process (career decision) [29]. The dimension of content in deciding a career is related to 'what', what people in their adolescent years choose [29]. Meanwhile, the dimension of the career decision process is related to 'how', how the decision is made [29]. The process includes the role of strategies that lead to the process of deciding on a career [22, 27, 28]. Career self-efficacy in this case is a process of career decision [22, 27, 28].

The basic concept of Future Time Perspective, in this research, refers to Zimbardo and Boyd about time perspective [21]. The basic time perspective of Zimbardo and Boyd refers to Lewin's perception [21, 30]. Individual behaviour is affected by the past and the future [30]. Furthermore, on the basis of Lewin's perception about the past and future in shaping individual behaviour [30], time perspective is related to several aspects, as in providing judgement, making decisions, and determining actions [21]. Thus, time perspective as a psychological process (unconscious) that involves the dimensions of cognition and emotion towards previous experiences which then serve as an individual basis to provide order, integration, and meaning to the past, the present, and the future [21].

Furthermore, in this study, we focus on the perspective of future time; future is the reflection of the tendency individuals think very deeply about their future, and they consider current behavior and several things that contribute to their future [21, 31]. More specific, it is an individual orientation towards the future which is presumed by individual optimisms to fight for their goals [21, 32]. Thus, individuals who focus on the future will increase their knowledge of things that contribute to their future [33]. Matters relating to the goals they have, goals, and behaviors and actions that lead to their goals [33].

Previously, Bandura [25] explained how to encourage success in terms of anticipating the future to match what was expected by individuals. Kooij, Rudolp, Kanfer, and Betts [33] links the application of FTP to realizing the goals of standards, planning, self-regulation of individuals which guide their implementation and actions towards the desired achievement, learning and well-being. Therefore, FTP will direct thinking,

planning, and determining future achievements [34]. Referring to the description, FTP contributes positively and significantly to students' CDSE.

Furthermore, researches related to CDSE and FTP only deal with the correlation and regression of FTP with CDSE. There have not been any FTP researches with detailed CDSE viewpoint available at the moment. As a rudimental reference, we found a research conducted by Nurmi which explained that in looking at the future, individuals involve three processes, namely motivation, planning, and evaluation [35]. Motivation indicates things that are of individual interests in the future, planning refers to how individuals plan to realize their interests, and evaluation shows how much interest is expected to be realized [35].

When associated in the context of CDSE, the FTP involves a motivational process that refers to motives, interests, and goals in determining careers [35]. In the planning process, individuals focus on how their careers and interests are realized [16]. The ability to recognize career interests and goals is an accurate self-appraisal. Thus, the FTP contributes accurate self-appraisal [16]. In the planning process to realize careers of interest, individuals have strategies to achieve goals and planning accompanied by problem solving in deciding careers [35]. The strategy refers to the basic knowledge gained by individuals [35]. This basic knowledge is career information that is of one's interest. The ability of individuals to search for information related to the career they have beend decided on is called gathering occupational information [16]. Thus, we concluded that the FTP contributed to gathering occupational information.

Future-oriented planning refers to how individuals plan the realization of purposes, interests, and goals [35] in deciding on a career. In this case, planning for future career orientation is in line with the concept of making plans for the future presented by Taylor and Betz [16] as an individual preparation in realizing a career that has been decided which specifically leads to the preparation for the career recruitment process in accordance with their interest [16]. Thus, the FTP affected making plans for the future. Career planning in the future itself includes three stages [35]. First, individuals map out their career goals and desires to realize them [35]. In the first stage of career planning, we concluded that the FTP contributed to goal selection. Second, individuals map out the plans, projects, and strategies to achieve goals in deciding on a career [35]. Mapping a planning in deciding on a career is the same as the problem solving process. In this case, individuals should have determined strategies that lead them to achieve their goals in career decision making [35]. Moreover, they compare several strategies in solutions that are considered the most efficient way to achieve goals [35]. Lastly, the strategies and solutions that have been applied in achieving goals are evaluated based on the greatest opportunities that lead to the achievement of goals [35]. Regarding the stage two in career planning, the existence of problem solving indicates resilience when faced with things that hinder their career decisions [16]. This shows that the FTP effected problem solving. Furthermore, the third stage, individuals execute the plans and strategies that have been determined [35].

The future evaluation process related to the CDSE includes evaluating the realization of the goals and plans that have been set [35]. It is related to the attribution of the cause and effect and matters that affect the future [35]. High school students who are in the career readiness phase are faced with career planning [36]. The existence of career preparation indicates that they are future oriented. Based on the matter of the fact, it shows that the orientation of individuals in the future has implications on their readiness in deciding on the right and appropriate career. Thus, the purpose of this research was to examine the effect of FTP on CDSE high school students who were the victims of the Sigi earthquake. In addition to that, this research also aimed to examine the effect of FTP on accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving.

2. RESEARCH METHOD

Generally, quantitative method was applied for exploring research's aim. For the details, it pointed on four sub sections. That were participan characteristics, measurements as a tool for conducting the data, procedures in research, and data analysis used.

2.1. Participant characteristics

The research data derived from the students of six high schools in Sigi District, Central Sulawesi, Indonesia. A total of 141 data were collected using questionnaires. The 141 students consisted of 51.1% female students and 48.9% male students (M = 1.49; SD = .50). In addition to the data, they were also consisted of 7.1% students of age 15 years old, 37.6% of age 16 years old, 35.5% of age 17 years old, 14.9% of age 18 years old, and 4.3% of age 19 years old; (M = 16.6; SD = .70).

2.2. Measurements

Career Decision-Making Self-Efficacy Scale Short-Form (CDMSES-SF) consisted of 25 items, however only 24-items were used to measure students' CDSE (α = 90), in which from the total of the 24-

items covered five dimensions, namely: accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving [16]. Meanwhile, for internal consistency coefficient per dimension, the score of internal coefficient ranging from between (α = .58) to (α = .66). The CDMSES-SF answer result stretches from a 6-point Likert scale ranging from very unsure (1) to very sure (6). All questions were favorable, where the higher the score is will represent the higher level of CDSE.

Six question items in the Zimbardo Time Perspective Inventory were used to measure the students' FTP (α = .74). The answer result to the FTP measuring instrument question stretches from a 5-point Likert scale ranging from very not describing (1) to very describing (5) [21]. All questions were favorable, where the higher the score is will represent the tendency of higher FTP.

2.3. Procedure

Participants in this study were determined by purposive sampling [37], which we have determined research participants with criteria for earthquake victims in Sigi District, high school students, and domiciled in Sigi District. Participants were recruited voluntarily. During the data collection process, the research team was assisted by a team of volunteers from the University of Indonesia Alumni Association (*Ikatan Alumni Universits Indonesia*; ILUNI UI) for Palu, Sigi, and Donggala. Before distributing the research questionnaire, we asked for their approval to join our research. Therefore, we used convenience sampling for participants in Sigi District that joined in ILUNI UI events.

Six high schools which are the educational background of the participants are located in the South Dolo and West Dolo, Sigi District. Participants involved in the research participated in completing the research questionnaires consisting of demographic aspects (gender, school origin, and class), the FTP used ZTPI, and the CDSE used CDMSES-SF. Questionnaires were distributed to the high school students from class X, XI, and XII at the time of licensing data collection, providing information on educational event invitations, and at ILUNI UI events.

2.4. Data analysis

To test the research hypothesis, we used a simple regression analysis, in which we regress the FTP on students' CDSE. Pearson correlation analysis test results will be presented by correlating the FTP with the five dimensions of CDSE. In addition, to test the FTP regression with accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving, we used multivariate regression analysis [38, 39]. All three analyzes were carried out using SPSS version 23.00.

3. RESULTS AND DISCUSSION

Before doing analyzes for correlational among variables and research's hypotheses, we tested parametric test [40, 41]. The results of normality test in Kolmogorov-Smirnov and Shapiro-Wilk indicated that *p* scored from .00 until .02, so that the data distributed normally. Also, skewness showed that it was between range ± 2. Table 1 shows the mean, standard deviation, and relationships between variables in the research. Meanwhile, Table 2 is the result of the simple FTP—CDSE regression. Moreover, Table 3 is the result of multivariate regression analysis between the FTP and accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving.

Pearson Correlation results (Table 1) indicate some significance of the relationship between gender, age, the FTP, and the CDSE of high school students. The FTP was positively and significantly associated with accurate self-appraisal *(r* = .22; $p < .05$), CDSE *(r* = .28; $p < .01$), gathering occupational information ($r = .18$; $p < .05$), goal selection ($r = .27$; $p < .01$), making plans for the future ($r = .33$; $p < .01$), and problem solving ($r = .20$; $p < .05$). Thus, the result of the simple regression analysis indicates that the FTP has significantly affected the CDSE of high school students ($B = .34$; $p < .01$) with F (1, 139) = 11.45 (Table 2). FTP explained 8% of the variance in CDSE.

Table 1. Correlations future time perspective and career decision self-efficacy

	Mean	SD	1	2	3	4	5	6	7	8	9
Sex difference	1.49	.50	–								
Age	16.6	.70	.02	–							
Future Time Perspective	3.67	.63	−.17*	.08	–						
Career Decision Self-Efficacy (CDSE)[a]	4.45	.68	−.24**	−.08	.28**	–					
CDSE−Accurate Self-Appraisal	4.56	.73	−.23**	−.60	.22*	.89**	–				
CDSE−Gathering Occupational Information	4.54	.87	−.20*	−.60	.18*	.86**	.72**	–			
CDSE−Goal Selection	4.44	.78	−.16	−.70	.27**	.85**	.72**	.65**	–		
CDSE−Making Plans for The Future	4.61	.77	−.26**	−.10	.33**	.89**	.74**	.71**	.69**	–	
CDSE−Problem Solving	4.11	.81	−.20*	−.06	.20*	.86**	.68**	.67**	.62**	.72**	–

*$p < .05$; **$p < .01$; Sex difference = 1 (Girls), 2 (Boys); [a]CDSE for total score.

Table 2. Simple regression analysis

					95% CI	
	B	*SE*	*β*	*t*	*LB*	*UB*
Constant	3.35**	.33	–	9.75	2.54	3.83
Future Time Perspective	.30**	.09	.28	3.83	.16	.51
	F (1, 139) = 11.45; R = .28; R^2 = .08; ΔR^2 = .07					

**$p < .01$

Multivariate regression results (Table 3) indicate that FTP is statistically a significant role in increasing the five criterion variables of CDSE (accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving): Wilk's $\Lambda = .88$, F (5, 135) = 3.84, $p < .01$. For the regression results of each criterion variable by the FTP, we found the significance of the model on accurate self-appraisal ($B = .25$; $p = .01$; F (1, 139) = 6.71; $p = .01$), gathering occupational information ($B = .25$; $p = .03$; F (1, 139) = 4.64; $p = .03$), goal selection ($B = .33$; $p = .00$; F (1, 139) = 10.86; $p =. 00$), making plans for the future ($B = .40$; $p = .00$; F (1, 139) = 16.80; $p = .00$), and problem solving ($B = .26$; $p = .02$; F (1, 139) = 5.67; $p = .02$).

In Table 3, we also reported R^2. It describes percentage of variance on explaining each dimensions from CDSE. We found that FTP explained 5% of the variance in accurate self-appraisal, 3% of the variance in gathering occupational information, 7% of the variance in goal selection, 11% of the variance in making plans for the future, and 4% of the variance in problem solving.

Table 3. Multivariate regression analysis

Criterion Variable	Variate: Future Time Perspective							
	B	*SE*	*t*	*p*	R^2	ΔR^2	95% CI *LB*	95% CI *UB*
Accurate Self-Appraisal	.25	.10	2.60	.01	.05	.04	.06	.43
Gathering Occupational Information	.25	.12	2.15	.03	.03	.03	.02	.47
Goal Selection	.33	.10	3.30	.00	.07	.07	.13	.53
Making Plans for the Future	.40	.10	4.10	.00	.11	.10	.21	.60
Problem Solving	.26	.11	2.38	.02	.04	.03	.04	.47

Referring to the findings of research conducted by Alston, Hargreaves, and Hazeleger [42], victims of natural disasters will experience changes in two aspects, namely aspects that are physically visible and not physically visible. Aspects that cannot be directly observed are such as psychological issues [42]. The psychological domain in question is as well as well-being and mental health in general [42]. Meanwhile, for high school students, post-natural disaster conditions (i.e., in this case earthquakes) have an impact on learning activities [43]. Furthermore, this condition will also have implications for career development [43-46].

This research was conducted to examine the effect of FTP on CDSE. The main objective of this research was to examine the effect of FTP on CDSE. Research finding showed that the FTP has significantly affected CDSE. The second objective of this study was to determine the contribution of FTP in each one of the CDSE dimensions. The result indicated that FTP has significantly affected accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving.

The result of a simple regression analysis indicated that high school students who were the victims of the earthquake occurred in Sigi District with a high FTP showed a high level of confidence that they were able to complete tasks related to career decision making. On the FTP—CDSE regression, these findings are consistent with the findings of previous study [20].

In line with the findings of our research, Cheng, Yang, Chen, Zou, Su, and Fan [47] found that FTP significantly affected career maturity. In career maturity, there is a dimension called career decisiveness [48]. Further, the career decisiveness dimension refers to the CDSE [48]. In relation to the CDSE, FTP significantly influenced career decisiveness or CDSE [47]. Similar results were also found by FTP to contribute to improving students' abilities in deciding their future careers [49, 50]. In connection with this result, high school students showed that their orientation towards FTP made them feel more capable in deciding on a specific career. They have a clear planning about the process of obtaining the careers that they want [51].

On the other hand, our research findings are not the same as research findings about the effect of FTP on several dimensions of CDSE that previously reported in Indonesia. If our research findings find that FTP contributes to the five dimensions of CDSE, previous study found that FTP only affects self-appraisal, goal selection, and making plans for the future [52]. In addition, FTP had no significant effect on the CDSE as a whole [52]. While in our study, we found that, after the earthquake hits Sigi district, FTP in high school students significantly affected the CDSE of high school students.

For the multivariate regression FTP—accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving, the positive analysis result indicated that an increase in one unit on the FTP will have implications for the increase of units on accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving. Furthermore, this shows that the FTP contributed on how high school students who are the victims of the earthquake in Sigi recognize and understand their interests and passions for desired career specifications [16], exploring information related to careers of interest (information career recruitment, career job descriptions, career opportunity information based on specifications of the field of study that have been taken, etc.) [16], determining career targets and specialization studies according to their interests, abilities, and lifestyles, planning careers including determining the taking of classes and professional education that supports future careers [16], determining the steps and requirements in the selection procedures for specialization in the field of study, and identifying several aspects related to the desired career [16], and overcoming several problems when a possibility of work-related or academic obstacles occurs on a chosen career or field of specialization [16].

FTP, in general, relates to education, employment, and health [53]. In addition, FTP also involves aspects of cognition, cognition and behavior intensity, cognition and feelings, and a mixture of cognition, behavior intensity, and feelings [53]. Meanwhile, specifically in the work domain, FTP contributes to career selection [53]. Individuals who focus on the future will also focus on their career planning [54, 55]. They have the responsibility to reach several achievements, full orientation to their goals, and focus on their interests and passion [55]. Thus, the attention that is only focused on future planning and goals makes them more diligent in the things they have considered. Furthermore, they have more strategies to solve the problem when faced with an obstacle in the process of struggling to get their goals. In addition, they will also be more proactive in finding and getting information related to the problem to realize the career they have planned and which they have been aiming for. Thus, orientation towards the future has a role in how individuals are more positive in looking at the future of their careers [56].

Then, in accordance with the result of the FGD, some high school students who were the victims of the earthquake in Sigi District experienced fear and anxiety. Especially, when they hear the word disaster, they feel anxious and afraid. On the other hand, they still have to continue their activities as high school students. When they were asked about their perspectives about the future, they expressed that they still wanted to be determined on fighting for their future. The result of the FGD indicated that although the earthquake-affected high high school students experienced anxiety, fear, and depression, which have a negative correlation with their confidence in deciding on a career [57], and positively correlated with their difficulty in deciding on a career [58], but focusing on the future and positive emotions can increase their motivation towards the future in terms of their confidence in deciding on their careers and determining to continue their education at tertiary institutions by choosing educational specialization in accordance with their passions and interests [59, 60].

Furthermore, negative emotions, as anxiety, affects performance [61], goal setting [62], self-efficacy [61, 63], and the ability of an individual to make decisions [64]. Meanwhile, according to Vázquez, Cervellón, Pérez-Sales, Vidales, and Gaborit's research [59] and research of Jeong [60], reinforcement of positive emotions and a focus towards the future can increase coping and resilience of the earthquake victims, in order for them to return to persistance in preparing and fighting for the future, especially in terms of career selection and planning. Putting on the results of Zhou and Yan's research [65], experiences as victims of natural disasters contribute to the desire to be more positive in their condition, which in their research mentions the terms of willingness to join in minimizing disaster supplies in the public sector (i.e., the intention to be more independent in the supplies during the post-natural disaster period [65]), which

depends on the orientation of the collective value [65]. In terms of CDSE, high school students with experience as victims of the earthquake try to be more positive about their future and self-efficacy to decide on a career they want.

3.1. Limitation and further research

The variables involved in this research were FTP and CDSE (with several dimensions). The context of the research was on high school students who were the victims of the earthquake in Sigi District, Central Sulawesi Province. The research aimed to test the effect of the FTP on CDSE. Correspondingly, for future research, the research can focus more on the one-way anova approach in testing the FTP intervention program (by involving teachers, psychologists, counselors, and some education practitioners) on the CDSE of high school students who were the victims of the earthquake. Thus, further research can compare the FTP—CDSE in earthquake-affected high school students with the FTP—CDSE of high school students who are the victims of other natural disasters, floods and tsunamis, due to the fact that the disasters in Central Sulawesi that occur are not only earthquakes, but also liquefaction, floods, and tsunami. Then, according to the previous research of Yun, Jung, and Jung [66] which involves a program in the learning process of students, the improvement of high school students' self-efficacy in deciding careers is reminded of learning programs or intervention programs that not only emphasize the aspects of CDSE but also on aspects of how high school students are more oriented towards their future (i.e., FTP).

4. CONCLUSION

The sum of this research is that the FTP has positively and significantly affected CDSE. Moreover, the FTP also contributed positively and significantly to accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving. Furthermore, the results of the research have implications for educational intervention programs designed by teachers, educational psychologists, and education counselors focused on the FTP in order to improve the CDSE (along with its five dimensions) of high school students who were the victims of the earthquake in Sigi District.

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