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A comparative investigation of emerging adults' moral thinking and communication competencies in Taiwan, the USA, and the UK

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ABSTRACT

Emerging adulthood is a unique and distinct period demographically, subjectively, and in terms of identity exploration in developed and developing countries. This study aimed to investigate emerging adults' moral thinking and communication competencies, and their differences by socio-demographic factors (i.e., gender, religious affiliation, college major, educational stages), in Taiwan, the USA, and the UK, as well as compare similarities/common trends and diversities between the three groups. We modified and utilized the MTC-II scale, including two dilemma stories relating to an individual and societal moral dilemma, to assess 743 valid sample participants. We found that females in the Taiwan group scored highest on the MTC-II scale across the three samples, whereas religious affiliation differentiated the USA and the UK groups. We also noted differences in scores relating to the two stories and associated moral levels. These findings are interpreted as a foundation for future research and educational practice.

Keywords : emerging adulthood, moral thinking and communication competencies, dilemma stories

Introduction

American scholar J. J. Arnett coined the term ‘emerging adulthood’ and proposed its theory in a widely cited article in the *American Psychologist* in 2000 to demonstrate the importance of this period from the late teens through the twenties. Emerging adulthood exists today mainly in industrialized or post-industrialized countries because of the gap between the post-adolescent period and the assumption of full adult status. During this period, young adults tend to postpone marriage and parenthood, which allows the twenties to be a time of exploration and instability, a self-focused age, and an age of possibilities (Arnett, 2000). The period of emerging adulthood, which is a distinct and unique period demographically, subjectively, and in terms of identity exploration (Arnett, 2000, 2001, 2004), has both positive and negative aspects from a moral perspective. Padilla-Walker, & Nelson (2017) have demonstrated the positive side of emerging adulthood, highlighting a time full of fun, freedom, creativity, and promising opportunities. In addition, Arnett (2001) pointed out that the cognitive development of emerging adulthood is characterized by development of certain aspects of post-formal thinking, especially pragmatism and reflective judgment. Early emerging adults with multiple ways of thinking might easily move toward an orientation of relativism or potential identity confusion, but late emerging adults usually reach a stage of commitment to certain views, because if specific views are more effective in resolving dilemmas and providing new evidence, they are willing to re-evaluate their views (Arnett, 2001). In contrast to these positive descriptors of the period, Smith et al. (2011) identified five major problems that may be experienced as the ‘dark side’ of emerging adulthood. They note that individuals may have: confused moral reasoning, routine intoxication, materialistic life goals, regrettable sexual experiences, and disengagement from civic and political life. Given the variation of passageways through this transitional period, it is worth attending to moral aspects of emerging adulthood to produce further discussion on these different perspectives, and it is valuable to conduct empirical research to justify related ideas regarding the moral aspect of emerging adults.

Emerging adulthood is not a universal period but a period of interaction between culture and personal psychology (Arnett, 2000, 2004). Since Arnett's emerging adult research and much of the literature it has influenced is based on the cultural background in the United States of America, this study aims to extend to other continents, i.e., the United Kingdom and Taiwan, to investigate their similarities and differences with a focus on moral functioning. The USA and the UK are both developed countries in which people live in democratic societies and share a number of cultural similarities; whereas Taiwan is a developing and emerging democratic society that combines Asia-Pacific and Western cultures. The current generation of emerging adults of Taiwan, the USA, and the UK are usually labelled as ‘Generation Z’ or ‘I-generation’, and have been dubbed ‘digital natives’,

raised on the internet and social media in a globalized world. There are other notable similarities between the three groups. More and more emerging adults have engaged in social movements; for example, the UK's student tuition fee protests in 2010 and riots in response to police violence in 2011, the Occupy Wall Street demonstrations that occurred in the USA in 2011, and Taiwan's Sunflower Movement that arose in 2014. The injustice and relative deprivation experienced by younger generations caused by phenomena such as globalization have led them to be concerned with social issues that often involve moral dilemmas. Despite similarities with these global youth movements, there may also be a diversity of thinking and communication based on different socio-cultural and historical contexts.

Emerging adult's moral functioning

In the book of Arnett & Tanner (Eds.) (2006) '*Emerging adults in America: Coming of age in the 21st century*', Labouvie-Vief (2006) presented theory and research on emerging adults' thought structure and cognitive development, pointing out that emerging adulthood usually brings about a 'relativistic' way of thinking. Padilla-Walker (2016) also emphasized that longitudinal research on moral reasoning suggests a somewhat U-shaped pattern of development from adolescence to emerging adulthood; this pattern may reflect a growing capacity for self-reflection and internalized reasoning, resulting in greater hesitancy and an increased tendency to tolerate and be respectful of diverse points of view. However, most developmental theories of moral functioning do not posit relativism as being a final stage of development because of its weaknesses in terms of decision making. Moreover, in the same Arnett (Ed.) (2016) book, there are two other chapters related to moral functioning. King & Kitchener (2016) emphasized that deep thinking and adaptability are critical in the period of emerging adulthood, and focused on emerging adults' cognitive complexity and dynamic development, which are connected with an age-related pattern, i.e. emerging adults usually have greater capacity to monitor their learning and thinking than do adolescents. Lapsley & Woodbury (2016) focused on social cognitive constructs in emerging adulthood and emphasized emerging adults' self-other constructions and the development of perspective-taking, interpersonal understanding, interpersonal negotiation, and self-understanding. They noted that there is a mélange of social-cognitive developmental capacities with significant overlap across stages in the period of emerging adulthood. All previous studies have shown that moral functioning in emerging adulthood exhibits having multiple points of view, perspective-taking, tolerance, and self-reflection, as well as cognitive complexity and dynamic development, that are substantially different from adolescence.

Moral thinking and communication scale

Due to increasingly complex social issues in a challenging world, understanding how to improve the moral functioning of emerging adults is more important than ever. Lee & Thoma (2018) developed a measure of moral thinking and communication (hereafter called the MTC scale) based on the real-life experiences of Taiwanese high school and university students. The MTC scale is informed by competencies from four independent and interrelated theoretical perspectives, including competencies of moral awareness, moral judgment, moral discourse, and moral decision-making and tested through four moral dilemmas (Lee & Thoma, 2018). The competencies of moral awareness and moral judgment are drawn from the legacy of Kohlberg's moral-developmental theory (Kohlberg, 1986) and the Neo-Kohlbergian theory, as well as the Four Component Model (FCM, including moral sensitivity, moral judgment, moral motivation, moral character) (Rest, et al., 1999). Moral discourse competency was influenced by J. Habermas's and K.-O. Apel's theory of discourse ethics. Habermas (1983, 1990) advocated that the purpose of discourse is oriented to reaching understanding in a reflective form within an intersubjective shared life world, while Apel (1999) argued that discourse ethics can be uncovered through transcendental-pragmatic reflection when we exist in a communicative community. The competency of moral decision-making was employed from L. Hinman's ethical pluralism, which stresses that 'the truth of a moral life is not unitary nor relative, but pluralistic, meaning that there are 'many truths that are sometimes partial and sometimes conflicting' (Hinman, 2008, p.49). Thus, the meanings of the four competencies in the MTC functioning are described as thus (Lee & Thoma, 2018): moral awareness is a competency to recognize a moral issue/problem existing in a complex social situation as well as arousing sympathy/empathy to care about self and others; moral judgment is a competency of judging right and wrong when faced with a moral dilemma based on principles of justice; moral discourse is a competency to evaluate and defend moral arguments within a process of reasoned discussion and dialogue to search for identity of the self and one's place in the community; and moral decision-making is defined as a competency of understanding multiple-perspectives, deliberative thinking on moral issues, and finally attaining the integrity of oneself or consensus-building with others in communication, i.e. reciprocal dialogue and discourse.

The MTC scale contains four moral dilemma stories differing by a focus on micro-moral and macro-moral levels, both of which may be intertwined with each other (Lee & Thoma, 2018). Micro-morality refers to the face-to-face relations that people have in everyday life; whereas macro-morality describes the formal structure of society, as defined by institutions, rules, and roles (Rest, et al., 1999, p.291). The four dilemma stories, which address concerns considered common for different cultural contexts, comprise a story focusing on whether or not to report a good friend's cheating (labeled the

cheating story, micro-morality), a story focused on a decision whether or not to terminate a pregnancy (labeled the abortion story, micro-morality), a story describing the choices between environmental vs. economic development considerations (labeled the environment story, macro-morality), and a story describing the arguments for waging a pre-emptive war to prevent genocide (labeled the war story, macro-morality). Each story is followed by nine questions: the first question asks participants to choose whether they support or oppose the protagonist's moral action. Following this choice, participants are asked eight questions representing four competencies of MTC functioning. Each competency has two questions and is assessed using two approaches: one question with twelve rating items using a 5-point Likert scale, and the other one question ranking the four most important items from the rating items. Responses to the questionnaires are summarized by focusing on participants' responses to the 'ranking' questions across the different stories. The resulting score is labeled the PL1 index (Lee & Thoma, 2018).

The current study

The purposes of the current study are: to use the MTC scale to investigate emerging adults' moral thinking and communication competencies and their differences by socio-demographic factors (i.e., gender, religious affiliation, college major, educational stages) in participants from Taiwan, the USA, and the UK; to compare any similarities/common trends and differences of moral thinking and communication competencies between the three groups; and to provide implications for moral education and research.

Method

Procedure and measure

University IRB/REC from Taiwan, the USA and the UK respectively provided the approval of research ethics for our collaborative research. We adopted the MTC scale in this current study but modified it into an updated measure that we term the MTC-II scale, in order to improve psychometric properties of validity and reliability. Lee & Thoma (2018) indicated that the Cronbach's alpha of internal reliability of the four stories (cheating, abortion, environment, and war) were 0.81, 0.71, 0.77, and 0.81, respectively. The previous research provided evidence of face and content validity for the MTC scale through the construction of a rubric, which contained four competencies of MTC functioning with twelve criteria and a four-level quality index (named level D, C, B, A) representing various degrees of proficiency from the lowest to the highest for MTC functioning. In addition, the MTC scale revealed the sensitivity to educational interventions, and mostly showed the validity of sensitivity to educational levels, i.e., higher educational level students scored higher than the others. Therefore, the MTC scale has acceptable psychometric properties.

In order to further strengthen construct validity of the scale in addition to face and content validity and internal reliability, as well as to shorten the length of the MTC scale, we selected specific items and modified the scoring strategy based on a multiple sample exploration. This scale, which is identical to the MTC scale, contains four components of competencies, and twelve criteria to reveal the face and content validity of the rubric, while only choosing one level (A or D, as a reversed item) of the rating item using a 5-point Likert scale because of the need for commensurability. Each story has 12 items and its sub-total score is 60. Two main strategies were used to collect participants' responses: paper and pencil and online web-based questionnaires. For participants in Taiwan the Chinese version of the MTC-II questionnaire was administered in a paper-and-pencil format.

The MTC scale has a full Chinese version and a partial English version, with four moral dilemmas, developed by Lee & Thoma (2018). We adopted both versions of stories and translated their items from Chinese into an English online web-based questionnaire version to test participants in the USA and the UK. The research group, including Chinese and English native speakers, discussed and revised the English version through three iterations to ensure the reliability of translation. Once the research teams came to consensus on the stories and items, we conducted pilot studies of participants in the USA ($N=26$) and the UK ($N=21$) to assess participants' understanding of the items and proposed experimental process. In addition, we assessed the modified MTC in a sample of Taiwanese students ($N=197$) to assess the similarities and differences between the original and revised MTC. Following the results of these preliminary assessments and the time demands on participants, we selected two stories for the MTC-II scale used in this study. The MTC-II includes the cheating story as a micro-moral level and the environment story as a macro-moral level. These stories were also associated with the highest Cronbach alphas (both higher than .7). In summary, the measure used in the current study included the revised MTC-II (containing 2 stories and 24 items, see Appendix). This measure was used in a pre-test and in the main surveys of this study.

To assess the psychometric strength of the MTC-II in the current sample, we calculated the full scale's Cronbach's alpha values, which were 0.79 (Taiwan pre-test, $N=437$), 0.83 (Taiwan sample, $N=241$), 0.77 (USA sample, $N=272$), and 0.74 (UK sample, $N=230$). The alpha values for the cheating story and the environment story ranged from 0.71 to 0.79. In addition, we conducted a Rasch-based analysis by using Winsteps Rasch software to judge the quality of the construct validity of the MTC-II main survey of three groups in three main statistics (i.e., item polarity, item fit, and separation and reliability) as benchmarks (Tan, & Chellappan, 2018). The item polarity of MTC-II (24 items, 742 persons) had a positive PTMEA Correlation from 0.15~0.52, which showed that items move in parallel with the measured construct. The statistical analysis of the suitability of the items was conducted to identify the item fit of the instrument, including item infit and outfit. The MTC-II's infit and outfit statistics were 0.81~1.44, which are statistics reported as mean square with an expected

range obtained between 0.6 logits and 1.4 logits (Tan, & Chellappan, 2018). The MTC-II's within-person reliability was 0.74, referring to the acceptable consistency of the person ordering that could be expected if this sample of persons was given another set of items measuring the same construct, while its item reliability was 0.99, implying the high consistency of item placement along the pathway if these same items were given to another sample with similar ability levels. As expected, the dimensionality (i.e. the common latent variables) assessed by employing a Rasch analysis found that the MTC-II included two dimensions, which conformed to the micro-morality and macro-morality dimensions assumed by the model. Consequently, the MTC-II scale has completely acceptable psychometric properties of validity and reliability, stronger than the original MTC scale, in the Taiwan, USA, and UK samples separately and as a whole.

Participants

Between November 2019 and April 2020, with the assistance of our colleagues, friends, and posting notices on publicly available social media group noticeboards, we conducted major surveys in Taiwan, the USA, and the UK. We utilized one main university as a platform to recruit participants for each group because university students and their alumni were likely to be from diverse geographical backgrounds, spreading across respective cultural contexts. Additionally, the three major universities of the three groups are analogous in school size (around 10,000~15,000 students) and school ranking (medium) in order to be comparable in this study. During the recruitment period, we also contacted student Facebook clubs of more than 30 British universities to supplement samples. The participants of this study were emerging adults between the ages of 18 and 29 holding the nationality of their respective countries. Focusing on educational domain and its diversity (i.e., age, gender, college major), we recruited samples from four groups: (1) freshman/1st year of undergraduate study, (2) sophomore, junior, or senior / 2nd, 3rd, or 4th year of undergraduate study, (3) graduate student, and (4) young adult with at least a Bachelor's degree but not in college or graduate school. There were 743 valid sample participants that completed the main survey, from the three groups (see Table 1). There were altogether 255 freshmen (aged 18.73 ± 0.94), 236 junior/senior (aged 21.62 ± 2.32), and 250 participants who finished college (aged 25.05 ± 2.42), including graduate students and the other participants who are not in school with at least a bachelor's degree. The proportion of participants with a college major in H & SS (humanities or/and social science) was 21.7% ($N=90$) males and 78.3% ($N=324$) females, while the proportion of participants with a N & T (natural science or/and technology) major was 43.7% ($N=128$) males and 56.3% ($N=165$) females.

Table 1.*Basic demographic information for MTC-II*

Category	Taiwan (N=241)		USA (N=272)		UK (N=230)	
	Options	N (%)	Options	N (%)	Options	N (%)
gender	Male	116(49%)	Male	40(15%)	Male	68(30%)
	Female	123(51%)	Female	231(85%)	Female	160(70%)
	others	2(1%)		1(0%)		2(1%)
Geographical backgrounds	Northern	59(24%)	Northeast	43(16%)	England	165(72%)
	Central	69(29%)	Southwest	23(8%)	Scotland	7(3%)
	Southern	65(27%)	West	37(14%)	Wales	4(2%)
	Eastern	5(2%)	Southeast	86(32%)	N. Ireland	6(3%)
	Not clearly marked	43(18%)	Midwest	55(20%)	Not clearly marked	48(21%)
			Not clearly marked	28(10%)		
Ethnic group	Han	231(96%)	White/	171(63%)	White/	171(74%)
	Taiwanese		Caucasian		Caucasian	
	Others	10(4%)	Black/	19(7%)	Black/	9(4%)
			African		African	
			Asian	25(9%)	Asian	20(9%)
			Hispanic	25(9%)	Not clearly marked	30(13%)
			Not clearly marked	32(12%)		
Religious affiliation	Yes	56(23.2%)	Yes	129(47.4%)	Yes	69(30.1%)
	No	185(76.8%)	No	143(52.6%)	No	160(69.9%)
College major	H & SS	101(23.2%)	H & SS	171(47.4%)	H & SS	145(30.1%)
	N & T	131(76.8%)	N & T	87(52.6%)	N & T	76(69.9%)

Analysis

To analyze the results of the main survey regarding the MTC-II scale within and across Taiwan, the USA and UK, we adopted three strategies. First of all, we utilized a paired-samples t-test, a one-way analysis of variance (ANOVA), and a correlation analysis to assess the relationship and differences between participants' competencies of micro-morality and macro-morality within and between the three groups. Furthermore, we computed the socio-demographic factors and further analyzed variables that revealed statistical significance in at least one of the three groups' results. We compared the similarities and differences on the MTC-II scores within and between the three groups by gender, religious affiliation, college major, and educational stages using an independent-samples t-test and a

one-way ANOVA, as well as testing their p-values and effect sizes. Finally, we conducted a two-way independent multivariate analysis of variance (MANOVA) to further investigate interactions between the socio-demographic factors.

Results

Micro-morality and macro-morality by the three groups

Firstly, we analyzed the relationship and differences between participant's competencies of micro-morality (the cheating story) and macro-morality (the environment story) within and between the three groups. In the Taiwan sample, scores for the macro-morality scale (M=48.7, SD=4.47) were higher than micro-morality scores (M=41.66, SD=6.62) ($t_{(240)}=-16.406$, $p=.000^{***}$, Cohen's $d=0.662$). Micro and macro morality scores showed a moderate positive relationship ($r=0.406^{***}$). In the USA sample, macro-morality (M=45.43, SD=6.37) scores were higher than micro-morality scores (M=41.17, SD=7.02) ($t_{(271)}=-7.771$, $p=.000^{***}$, Cohen's $d=0.363$). The correlation between micro and macro morality scores were not statistically significant ($r=0.087^{n.s.}$). In the UK sample, macro-morality (M=45.36, SD=5.69) scores were higher than micro-morality scores (M=41.52, SD=7.09) ($t_{(228)}=-6.571$, $p=.000^{***}$, Cohen's $d=0.341$). Again, their correlation was not significant ($r=0.056^{n.s.}$). We found that there was no difference in micro-morality scores between Taiwan, the USA and UK ($F(2,739)=0.354^{n.s.}$; $\eta^2=0.0010$). However, there were differences on macro-morality scores ($F(2,739)=25.575^{***}$; $\eta^2=0.0647$) and MTC-II total scores ($F(2,739)=11.186^{***}$, $\eta^2=0.0294$). In addition, the Taiwan sample (total M=90.36, SD=10.16) scored significantly higher than the USA (total M=86.60, SD=9.88) and UK (total M=86.89, SD=9.34) samples on macro-morality and MTC-II total scores.

Gender difference by the three groups

Secondly, we focused on gender differences in participants' moral thinking and communication competencies within and between the three groups (see Table 2). In the Taiwan sample, females, for the most part, scored higher than males on all MTC-II variables. In the USA and UK samples, there was no gender difference except for in macro-morality scores in the USA sample. In addition, we compared the MTC-II scores between the three groups by gender and found: (1) there was no difference in micro-morality scores by gender between Taiwan, the USA, and UK (male: $F(2,221)=0.079^{n.s.}$, $\eta^2=0.0007$; female: $F(2,511)=2.796^{n.s.}$, $\eta^2=0.0100$); (2) for males, UK scores were significantly lower than both Taiwan and the USA in macro-morality ($F(2,221)=6.553^{**}$, $\eta^2=0.0560$), while for females, Taiwan scores were significantly higher than the USA and UK ($F(2,511)=27.052^{***}$, $\eta^2=0.0957$); (3) Taiwan's female significantly scored higher than the USA and UK in MTC-II total scores ($F(2,511)=19.873^{***}$, $\eta^2=0.0722$).

Table 2.*t*-test results of gender differences on MTC-II scores within the three groups

	options	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>	comparison
Taiwan									
Micro	Male	116	40.23	7.21	-3.310	237	.001**	0.4291	female>male
	Female	123	43.03	5.76					
Macro	Male	116	47.69	5.25	-2.904	237	.004**	0.3776	female>male
	Female	123	49.72	5.50					
total	Male	116	87.92	10.32	-3.768	237	.000***	0.4872	female>male
	Female	123	92.75	9.49					
USA									
Micro	Male	40	40.10	8.97	-.828	269	.412 ^{n.s.}	0.1559	
	Female	231	41.33	6.64					
Macro	Male	40	47.83	6.11	2.617	269	.009**	0.4545	male>female
	Female	231	45.00	6.34					
total	Male	40	87.93	12.12	.943	269	.347 ^{n.s.}	0.1472	
	Female	231	86.33	9.45					
UK									
Micro	Male	68	40.63	8.00	-1.228	226	.221 ^{n.s.}	0.1710	
	Female	160	41.89	6.68					
Macro	Male	68	44.81	5.70	-.907	226	.365 ^{n.s.}	0.1317	
	Female	160	45.56	5.69					
total	Male	68	85.44	10.15	-1.490	226	.138 ^{n.s.}	0.2102	
	Female	160	87.45	8.94					

p*< .01, *p*< .001***Religious community membership by the three groups***

Thirdly, due to the diversity of religious beliefs and the sensitivity of this factor, we only wanted to know whether participants regard themselves as members of religious groups, rather than a specific religion or religious orientations (see Table 3). We assumed that religious affiliation would be associated with participants' moral thinking and communication competencies because of the emphasis on morality in religious teachings/doctrines. In the Taiwan sample, 56 (23.2%) participants regarded themselves as religious community members. There was no difference in MTC-II scores by religious group membership or not. In the USA sample, participants that were members of religious groups (*N*=129, 47.4%) had higher scores on the cheating story but had lower scores on the

environment story than those that were not. In the UK sample, participants that were members of religious groups ($N=69$, 30.1%) also had higher scores on the cheating story and total MTC-II scores than those that were not. There was no difference in the environment story by religious factor. In addition, we compared the MTC-II scores between the three groups by religious affiliation variable. There was no difference in micro-morality between Taiwan, the USA and the UK. For macro-morality, there were differences between Taiwan, the USA and UK by religious membership. In these comparisons, Taiwan participants scored significantly higher than the USA and UK participants regardless of religious membership.

Table 3.

t-test results of religious community member on MTC-II scores within and between the three groups

		<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>	comparison
Taiwan									
Micro	Yes	56	41.52	7.24	-.184	239	.854 ^{n.s.}	0.0263	
	no	185	41.70	6.44					
Macro	Yes	56	49.18	5.65	.749	239	.455 ^{n.s.}	0.1138	
	no	185	48.55	5.42					
total	Yes	56	90.70	11.23	.283	239	.777 ^{n.s.}	0.0417	
	no	185	90.26	9.84					
USA									
Micro	Yes	129	42.57	6.74	3.176	270	.002 ^{**}	0.3871	yes > no
	no	143	39.90	7.05					
Macro	Yes	129	44.56	6.08	-2.169	270	.031 [*]	0.2629	no > yes
	no	143	46.22	6.54					
total	Yes	129	87.12	9.20	.831	270	.406 ^{n.s.}	0.1005	
	no	143	86.13	10.46					
UK									
Micro	Yes	69	43.49	6.23	2.801	227	.006 ^{**}	0.4147	yes > no
	no	160	40.68	7.28					
Macro	Yes	69	45.99	5.69	1.088	227	.278 ^{n.s.}	0.1582	
	no	160	45.09	5.69					
total	Yes	69	89.48	8.78	2.800	227	.006 ^{**}	0.4086	yes > no
	no	160	85.77	9.37					

One-Way Analysis of Variance between the three groups

Micro_religious members: $F(2,251)=1.335^{n.s.}$, $\eta p^2=0.0105$; non-members: $F(2,485)=2.813^{n.s.}$, $\eta p^2=0.0115$;
Macro_religious members: $F(2,251)=12.041^{***}$, $\eta p^2=0.0875$; non-members: $F(2,485)=15.742^{***}$, $\eta p^2=0.0610$;
Total_religious members: $F(2,251)=3.161^*$, $\eta p^2=0.0246$; non-members: $F(2,485)=11.027^{***}$, $\eta p^2=0.0435$

** $p < .01$, *** $p < .001$

College major differences by the three groups

Fourthly, we were interested in whether differences in college major subject areas were associated with participants' moral thinking and communication competencies within and between the three groups. We also noticed that in the MTC-II score, there was a moderately positive correlation between college major and gender (Pearson chi-square $(df) = 38.750_{(1)}$; $p = .000^{**}$; Cramer's $V = .234$). In the Taiwan sample, participants whose college major was in H & SS ($N=101$, $micro_M=42.91$, $macro_M=50.54$, $total_M=93.46$) had significantly higher scores than those whose major was in N & T ($N=131$, $micro_M=40.67$, $macro_M=47.28$, $total_M=87.96$) in all MTC-II scores. In the USA sample, H & SS participants ($N=171$, $macro_M=47.13$, $total_M=88.18$) had higher scores than N & T participants ($N=87$, $macro_M=41.97$, $total_M=83.41$) in macro-morality and total scores. In the UK sample, H & SS participants ($N=145$, $macro_M=46.09$, $total_M=88.07$) had higher scores than N & T participants ($N=76$, $macro_M=43.91$, $total_M=84.67$) in macro-morality and total scores. In addition, there was no difference by college major in micro-morality between Taiwan, the USA, and UK. In terms of macro-morality (H&SS: $F(2,414)=20.461^{***}$, $\eta p^2=0.0890$; N&T: $F(2,291)=23.844^{***}$, $\eta p^2=0.1408$) and total scores (H&SS: $F(2,414)=12.684^{***}$, $\eta p^2=0.0577$; N&T: $F(2,291)=6.013^{**}$, $\eta p^2=0.0397$), the Taiwan samples still scored higher than the USA and the UK across all college major subject areas.

Educational stage differences by the three groups

Fifthly, we investigated whether the educational stage was associated with participants' moral thinking and communication competencies within and between the three groups (see Table 4). In the Taiwan sample, participants who finished college had significantly higher scores than freshmen in all MTC-II scores. Participants who finished college also had higher scores than junior/senior in micro morality and total scores. In both the USA and UK samples, there was no difference between educational stages in micro-morality; however, participants who finished college scored higher than those in other educational stages in macro-morality and total scores. When we compared the three groups, we found that there was no significant difference in micro-morality scores of freshmen and junior/senior students. However, in the Taiwan sample, participants who had finished college had significantly higher micro-morality scores than those in the USA sample. Taiwan's participants at

each stage of education in macro-morality and total-MTC-II typically scored higher than both the USA and UK.

Table 4.

One-Way Analyses of Variance on different educational stages of MTC-II scores by the three groups

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>F</i>	η^2	Scheffé
Taiwan						
Micro morality						
freshmen	81	40.50	6.55	F(2,237)	0.0426	after college > freshmen
junior/senior	100	41.18	7.32	=5.272**		after college>junior/senior
after college	59	43.97	4.73			
Macro morality						
freshmen	81	47.37	5.89	F(2,237)	0.0364	after college > freshmen
junior/senior	100	48.93	5.38	=4.478*		
after college	59	50.08	4.69			
MTC-II total						
freshmen	81	87.87	10.31	F(2,237)	0.0532	after college > freshmen
junior/senior	100	90.11	10.73	=6.655**		after college>junior/senior
after college	59	94.05	7.74			
USA						
Micro morality						
freshmen	65	42.17	5.97	F(2,269)	0.0107	
junior/senior	74	41.55	7.01	=1.456 ^{n.s.}		
after college	133	40.46	7.46			
Macro morality						
freshmen	65	42.38	5.93	F(2,269)	0.1527	after college > freshmen
junior/senior	74	43.62	6.25	=24.244***		after college>junior/senior
after college	133	47.93	5.64			
MTC-II total						
freshmen	65	84.55	9.21	F(2,269)	0.0321	after college > freshmen
junior/senior	74	85.18	9.91	=4.458*		
after college	133	88.39	9.93			
UK						
Micro morality						

freshmen	109	41.75	7.39	F(2,226)		
junior/senior	62	40.81	7.22	=0.438 ^{n.s.}	0.0039	
after college	58	41.86	6.40			
Macro morality						
freshmen	109	44.89	5.34	F(2,226)		after college > freshmen
junior/senior	62	44.00	6.05	=7.471 ^{**}	0.0620	after college>junior/senior
after college	58	47.71	5.32			
MTC-II total						
freshmen	109	86.64	9.30	F(2,226)		
junior/senior	62	84.81	9.53	=4.078 [*]	0.0348	after college>junior/senior
after college	58	89.57	8.68			

One-Way Analyses of Variance between the three groups

Micro_freshmen: $F(2,252)=1.271$ ^{n.s.}, $\eta^2=0.0100$; junior/senior: $F(2,233)=0.183$ ^{n.s.}, $\eta^2=0.0016$; after college: $F(2, 247)=5.704$ ^{**}, $\eta^2=0.0441$;

Macro_freshmen: $F(2,252)=13.998$ ^{***}, $\eta^2=0.1000$; junior/senior: $F(2,233)=22.329$ ^{***}, $\eta^2=0.1608$; after college: $F(2,247)=3.905$ ^{*}, $\eta^2=0.0307$

Total_freshmen: $F(2,252)=2.164$ ^{n.s.}, $\eta^2=0.0169$; junior/senior: $F(2,233)=7.272$ ^{**}, $\eta^2=0.0588$; after college: $F(2,247)=7.864$ ^{***}, $\eta^2=0.0599$

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

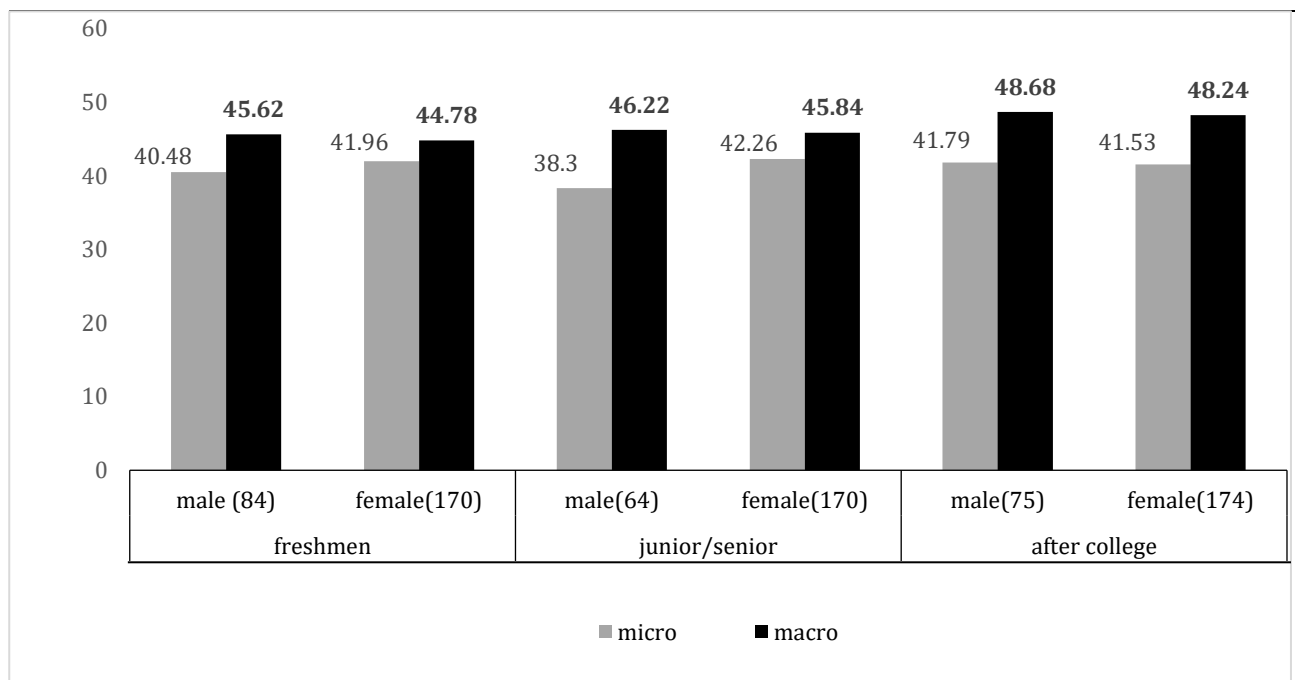
Gender and educational stage interaction

Finally, after analyzing individual socio-demographic factors within and between the three groups, we further conducted a two-way independent MANOVA and found that there was a statistically significant interaction between gender and educational stage, though not for any other factors. This helped us resolve the inconsistency between the assumption and results of educational stages. We assumed that participants who finished college will score higher than undergraduate students, while participants who are junior/senior college students will score the lowest based on the references. A MANOVA with MTC-II scores as the within-subject factor, and three educational stages and gender as the between-subject factors was conducted to investigate moral thinking and communication competencies across gender and educational stages. The interaction between educational stages and gender was statistically significant (Wilks' $\lambda = .987$, $p = .046$ *) in micro-morality ($F(2,733)=4.682$, $p = .010$ *, $\eta^2 = .013$) but not in macro-morality ($F(2,733)=.093$, $p = .911$ ^{n.s.}, $\eta^2 = .000$), or total scores ($F(2,733)=2.415$, $p = .090$ ^{n.s.}, $\eta^2 = .007$). We then further conducted statistical analyses of the simple main effects by splitting the data by gender and educational stages, respectively. Male and female

participants had a significant difference between educational stages in micro-morality scores, although results showed that both male and female participants in the after-college group typically scored the highest in macro-morality and total scores. After college male participants scored higher than junior/senior male in micro-morality ($F(2,219)=3.615, p=.029^*, \eta^2=.032$), while there was no significant difference between the educational stages of female participants in micro-morality ($F(2, 510)=.552, p=.576^{n.s.}, \eta^2=.002$). For educational stage, both freshmen and participants who finished college had no significant difference by gender in overall scores. However, junior/senior participants had significantly different results in micro-morality ($F(1,231)=14.945, p=.000^{***}, \eta^2=.061, \text{female}>\text{male}$) and total scores ($F(1,231)=5.542, p=.019^*, \eta^2=.023, \text{female}>\text{male}$), whereas there was no difference by gender in macro-morality ($F(1,231)=.168, p=.682^{n.s.}, \eta^2=.001$). (see Figure 1)

Figure 1

The interaction between gender and educational stage in micro and macro morality scores



Discussion

The current study was informed by recent developmental descriptions of emerging adults. In this literature young adults are characterized by broad-based developmental changes on cognitive, social, moral dimensions (Arnett, 2001). In addition, this period is associated with exploration and the potential for both positive and negative outcomes (Padilla-Walker, & Nelson, 2017; Smith et al., 2011). In focusing on moral functioning, we attend to a developmental dimension that highlights the emerging adult's views about cooperation and how one understands fairness and how best to promote

it. We suggest that these are central considerations during this period and reflect the cognitive and identity transitions that also characterize this developmental period. In addition, we were interested in different socio-demographic categories representing different pathways through the emerging adult years as characterized by gender, educational stages, college major, and religious affiliation. Taken together our findings indicate how these three groups attend to social-moral considerations and where there may be differences by cultural contexts.

Summary of results within the three groups

According to the rationale and the previous studies of the MTC scale (Lee & Thoma, 2018), the MTC-II scale represents social-cognitive development of moral thinking and communication competencies. Higher scores on the MTC-II scale represent stronger competencies to arouse moral awareness, to make moral judgments, to create moral discourse, and make a moral decision. Based on our analysis we were able to summarize the results within the three groups. In the Taiwan sample, scores for the macro-morality scale were higher than micro-morality scores. Micro and macro morality scores showed a moderate positive relationship. For the most part, Taiwan's female participants scored higher than males on all scores. There was no difference in MTC-II scores by religious affiliation. Taiwan's participants whose college major was in H & SS had significantly higher scores than those whose major was in N & T in all scores. Participants who finished college had significantly higher scores than freshmen in all scores and had higher scores than junior/senior in micro morality and total scores. Overall, the average scores by variables of Taiwan's participants in each story (12 items, subtotal score is 60) were 40.23~50.54. In the USA sample, macro-morality scores were higher than micro-morality scores. The correlation between micro and macro morality scores was not statistically significant. There was no gender difference except for in macro-morality scores. The USA participants that were members of religious groups had higher scores on the cheating story but had lower scores on the environment story. H & SS participants had higher scores than N & T participants in macro-morality and total scores. There was no difference between educational stages in micro-morality; however, participants who finished college scored higher than those in other educational stages in macro-morality and total scores. Overall, the average scores by variables of the USA participants in each story were 39.9~47.93. In the UK sample, macro-morality scores were higher than micro-morality scores. Their correlation was not significant. There was no gender difference. The UK participants that were members of religious groups had higher scores on the cheating story and total MTC-II scores than those that were not. There was no difference in the environment story by religious variable. H & SS participants had higher scores than N & T participants in macro-morality and total scores. There was no difference between educational stages in micro-morality; however, the UK participants who finished college scored higher than those in other educational

stages in macro-morality and total scores. Overall, the average scores by variables of the UK participants in each story were 40.63~47.71.

Different characteristics of the three groups

The aforementioned results revealed that each group displayed distinct characteristics. First, we found that there was a gender difference in the Taiwan sample, but not in the USA and UK samples. According to a number of recent studies on moral scales (e.g., Defining Issues Test, DIT, and Intermediate Concept Measure, ICM), women usually score higher than men among teenagers or undergraduates. For example, Maeda, et al. (2009) found that females tended to get higher DIT-2 scores than males. Thoma, et al. (2013) found that there was statistically significant moderate to large gender differences favoring females when observing across the three AD-ICM scores. Walker, et al. (2017) found that girls significantly outperformed boys in AD-ICM scores. Thoma, et al. (2019) found gender differences in ICM scale scores favoring females across five cultural groups of participants in Macedonia, Mexico, Taiwan, the UK, and the USA. The possible explanations were: (1) the DIT, which is associated with robust gender differences, is a measure of macro morality. The difference between this measure and the MTC-II is in the assessment – the DIT assesses moral schemas while the MTC-II assesses multiple indicators; (2) these previous studies have rarely investigated participants that had finished college; and (3) based on our statistical results on gender and educational stage interaction of the three samples altogether, there were gender differences in micro-morality but not macro-morality. For micro morality scores, female junior/senior college participants scored higher than males, whereas there was no difference by gender in freshmen or participants who finished college. Therefore, we noticed that gender had an interaction with the educational stage on micro or macro level of moral functioning. This means that if we want to promote the moral function of emerging adults, we need to consider different genders at all stages of education.

Moreover, we found that in the Taiwan sample, different from the USA and UK samples, females scored highest on the MTC-II scale, and revealed a positive relationship between micro and macro morality, which possibly explains the differences across the three samples. These characteristics may be related to the empowerment of women and gender equality as a part of Taiwan's social and cultural development in recent years. Ing-wen Tsai, Taiwan's first female President, won her first term in 2016 and second term in 2020. Taiwan became the first country in Asia to legalize same-sex marriage in 2019. In 2021, Taiwan ranks first in Asia and No.6 in the world for gender equality based on the Gender Inequality Index (GII) introduced by the United Nations Development Program (UNDP), which was used to carry out a self-assessment by the Taiwan Executive Yuan's Gender Equality Committee (Chen & Mazzetta, 2021). These factors have inspired Taiwanese women, particularly those from younger generations, to care and engage in macro-level social issues and civil actions.

Moreover, the feminist concept of ‘relational autonomy’ (Nedelsky,1989, pp.12-13), which is different from the individualism characteristic of the western liberalism, can be used to explain the result of the positive relationship between micro and macro morality in the Taiwan pattern. In this view, an agent’s social relationships - with parents, teachers, friends, and loved ones - may influence and complement each other for their autonomy in the public sphere (macro-level). Therefore, micro-morality (the cheating story) (similar to relational autonomy) and macro-morality (the environment story) (similar to individual autonomy) in Taiwan’s cultural context can have positive relationships and complement each other.

In contrast, we found that the USA and the UK samples showed similar characteristics to each other, which were very different to the Taiwan sample and indicated that religious membership or not was a clearly significant factor that is related to moral thinking and communication functioning, likely based on Western culture with its long-term Christian tradition. That is, the USA sample markedly revealed that members of religious groups scored higher in the cheating story, indicating higher levels of micro morality, but lower in the environment story. The UK sample also clearly showed that members of religious groups scored higher in the cheating story and total scores than the environment story. The study’s results seem to indicate that the USA and UK participants who belong to a certain religious affiliation are more concerned about micro issues than macro issues. The results also corresponded to those from some previous research, although they are not identical. For example, no statistically significant differences were found in the average P scores of DIT for the status of religious affiliation (Maeda, et al., 2009, p.238). Walker, et al. (2017) indicated that participants stating that they were religious scored higher than those who selected either ‘atheist’, ‘prefer not to say’ or did not provide a religion in ICM scores. Baker (2020) also mentioned that religiosity is a robust predictor of moral attitudes across all the models, which may reflect that religions often promote moral distinctions between what is morally sanctioned or proscribed both in the USA and the UK contexts. Therefore, we revealed that religious factors are associated with micro-morality (the cheating story) but not macro-morality (the environment story) of MTC-II.

Some similarities and common trends between Taiwan, the USA, and the UK

Besides the different characteristics between the three groups, we found that there were some similarities and common trends of the MTC-II scores between the three samples regardless of their demographic factors. They were: (1) Participants’ macro-morality (the environment story) scores were usually higher than their micro-morality (the cheating story) scores in Taiwan, the USA and the UK. (2) When comparing the differences of micro and macro morality between the three groups, we found that there was no difference in micro-morality between them. (3) The USA and the UK samples did not show a significant difference in macro-morality and MTC-II total scores, although the Taiwan

sample did score higher than the USA and UK samples on these measures. (4) Across all the three groups, participants that finished college scored higher than those at other educational stages in macro-morality and total scores, while in the Taiwan sample these participants also scored higher in micro-morality than those scores at other educational stages. When combining the populations of the three samples, male and female participants who were college juniors/seniors showed a significant difference in micro-morality; interestingly, junior/senior male participants scored the lowest in micro-morality. (5) The three samples' participants whose college major was in H & SS had significantly higher scores than those whose major was in N & T in macro-morality and total scores, whereas the three samples did not show similar results in micro-morality.

In terms of the similarities and common trends, we found that participants usually scored lower for the cheating story than for the environment story, and did not show any difference in the three groups, different college major or educational stages (except Taiwan's participants that finished college). This means that selected emerging adults living in democratic and free societies, regardless of cultural context, may similarly pay more attention to macro-morality (public policy-environmental issues) than micro-morality (personal conviction- honesty issues). However, private morality is intertwined with public morality, and some important social issues (e.g., the pandemic) challenge the essence of what it means to be a member of a society that highly values civil liberties, and is governed by traditions and social norms in people's private sphere (Zimmerman, 2020). In addition, participants that had finished college scored the highest in macro-morality and total scores in all three groups. This indicates that certain areas of moral functioning correspond to educational stages of development. This has been observed with other moral scales, but few earlier studies have included participants who have finished college or investigated an interaction between gender and educational stage. This study's result showed that both male and female participants in the after-college group typically scored the highest in macro-morality and total scores, which is a linear development of the educational stage. However, male and female participants had a significant difference between educational stages in micro-morality scores, particularly participants of male junior/senior college scoring lower than other educational stages (i.e., freshmen/ first year and after-college groups), which was a U-shaped developmental sequence. The results partly provide empirical evidence for Arnett's (2001) relativist viewpoints and Padilla-Walker's (2016) U-shaped pattern on early emerging adulthood and clearly indicate that late emerging adults can usually reach a stage of commitment to certain views, scoring higher than early emerging adults on the MTC-II scale.

Limitations and implications

Despite our rigorous research methods there were some limitations that affected our findings: (1) Due to the broad age range of emerging adulthood and its many varieties, we were unsure about how many

types there are and who are their appropriate representatives. Therefore, this study may be narrowed to a sample of university educated persons. (2) For each area of morality (macro- and micro-), we were limited to using only one story. This may mean that our findings were influenced by the specific topics raised in the stories, as well as the more general areas of morality. (3) The measures of socio-demographic variables employed were not specific enough to give a comprehensive cultural comparison of emerging adults in Taiwan, the USA and the UK. However, consideration of socio-demographic factors was an exploratory part of the research, and as such we were able to identify some important similarities and differences between the three groups. (4) These small and non-random samples inevitably have their limitations, and our conclusions therefore cannot be generalized to the whole population of emerging adults in each country.

Despite these limitations, from our collaborative research across the three countries we have learned some implications for moral education: (1) We demonstrated similarities/common trends and different characteristics in emerging adults' moral thinking and communication functioning for the three groups across different continents/cultural contexts. We learned that the theory and practice of moral education/development should have at their common core a combination of principles/values beyond their cultural boundary and traits based on their own background. (2) Emerging adults' moral thinking and communication competencies need to be examined with more detailed analysis across different spheres of social issues (i.e., micro and macro morality, as well as a wider range of dilemma stories) and be tested with consideration of an expanded number of demographic factors and their interaction. From this, we can understand how to improve students/learners, particularly for emerging adults aged 18 to 29, with varying degrees of moral thinking and communication functioning according to each socio-demographic factor. (3) Regarding micro and macro morality and the four competencies of the MTC and MTC-II scales, future research should continue to investigate their relevance, particularly issues such as universality versus cultural specificity, and stability versus fluidity of competencies across different situations and contexts.

Conclusion

The aim of this study was to utilize the updated MTC-II scale, comprising a cheating story (micro-level moral dilemma) and an environment story (macro-level moral dilemma) to explore emerging adults' moral thinking and communication competencies in three different cultural contexts. Taiwan's participants, particularly females, usually scored higher than those from the USA and UK. Two main findings, a gender difference and a positive relationship between micro and macro morality, was only observed in the Taiwan sample. Conversely, associations with religious affiliation were only observed in the USA and UK samples. Besides notable differences, the three groups revealed some similarities and common trends, including participants' macro-morality scores were usually higher than their

micro-morality scores; participants that finished college scored higher than those at other educational stages in macro-morality and total scores; and participants whose college major was in humanities and social sciences had significantly higher scores than those whose major was in natural sciences and technology in macro-morality and total scores. When combining the three samples, male and female participants who were college juniors/seniors showed a significant difference in micro-morality; and junior/senior male participants scored the lowest in micro-morality. This is an exploratory comparative study on the moral functioning of emerging adults, and we hope our findings inspire further research in this area.

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Appendix- the MTC-II scale (2 moral dilemmas and 24 items)

I. The micro-morality dilemma- Reporting Cheating Story

Bruce and Jack are good friends at school. Both of them were straight A students in high school. However, Bruce missed many classes due to illness this semester. Jack discovered that Bruce had cheated on several exams. A few classmates noticed as well, but their teacher did not.

1. I feel that cheating is not a big deal.
2. I would feel a struggle between unfairness and friendship. It is tough to choose between what is right and your friends.
3. I feel that everyone is part of the school community, and he/she has to try to be a good influence.
4. I think that students' cheating is not a big deal, so I wouldn't do anything.
5. I think even a good friend should do the right thing by reporting a friend for cheating.
6. I think that reporting cheating is an indicator of one's character.
7. I would consider to list the reasons to support and oppose reporting the cheating, and then discuss the pros and cons.
8. I would argue that reporting cheating is the right thing to do.
9. I would claim that we must do what is best for the community and report the cheating.
10. It is an issue for Jack to decide since it only applies to him. I don't care about this issue.
11. If I were Jack in the story, I would argue that cheating is not fair to others in the class.
12. If I were Jack and there is no benefit for me, I would do nothing.

II. The macro-morality dilemma- An Environmental Story

William is the village head of Beautiful Village, which possesses a unique landscape and rich ecological resources. The village has attracted many tourists from abroad. However, there is only one connecting road in the village, so the traffic is inconvenient. The government plans to build a new connecting road to reduce traffic jams, thus improving tourism. Some villagers worry the new

infrastructure will lead to environmental damage and reduce their quality of their life. Therefore, they initiate a protest action and invite William to join them.

1. I feel that this is an issue that will affect all residents' quality of life.
2. I feel that William is facing an awkward predicament whether he would join the protest or not.
3. I feel that this is the government's business, so people don't need to intervene.
4. People are prone to argue for their own points of view, so we would be hard pressed to judge what is right or wrong in this case.
5. We can't know what kind of impact will occur after the construction.
6. I understand that the protest is relevant to individuals' home and environmental rights.
7. I cannot provide any reason for or against building a connecting road to discuss with others.
8. I suggest that people don't need to waste time on protest actions.
9. I would try to persuade people don't keep quiet for this issue and need to reflect on the effect of the environment if the road will be constructed.
10. If I were William, I would analyze the different views about the situation and then make a decision.
11. If I were William, I would decide which action to support according to fairness and justice for the whole community.
12. I am not William, so I don't have any opinion on this issue. This is not my business.