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COGNITIVE AUTONOMY DIFFERENCES AMONG ADOLESCENTS IN MALAYSIA: INSIGHTS FOR CLASSROOM PRACTICES

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ABSTRACT

This research examined the relationship between five areas of cognitive autonomy and development among adolescents. Students from middle and high school in Kedah participated in this study and ninety-four participants responded on the Cognitive Autonomy and Self-Evaluation (CASE) inventory, which examined the evaluative thinking, voicing opinions, comparative validation, decision making, and self-assessment. Scores were compared based on gender and grades. Results highlighted that high school students scored significantly higher in two of the five areas of cognitive autonomy. Additionally, female students in middle school rated themselves significantly higher in two areas of cognitive autonomy (evaluative thinking and decision making). Areas of academic grades, time watching TV, time spent reading, and using computer are also discussed.

Keywords: *cognitive autonomy, self-evaluation inventory, self-assessment, gender, adolescents*

INTRODUCTION

Adolescents could develop healthy psychosocial (Yeh, Liu, Huang, & Yang, 2007) and gain a sense of personal identity (Meeus et al., 2005) when they become independent from their parents and other

adults around them. Although autonomy and identity are separate constructs inside psychosocial development, they are closely related to each other. From theoretical views, autonomy is seen as an essential factor in the development of identity (Erikson, 1963; Meeus et al., 2005; Beckert et al., 2012). Adolescent autonomy increases self-reliance among adolescents, evidenced by distinguished ideas from authority figures, organized personal experiences, regulated their behaviours, guided individual goals, and independent decisions based on their own experiences without parental or adults support (Yeh et al., 2007). In addition, one of the most important tasks for adolescents is learning autonomous skills which in turn will help them manage their own lives and make positive healthy decisions. Autonomy is one's growing ability to think, feel, make decisions, and act on his or her own (Cicchetti & Rogosch, 2002).

Autonomy includes three facets, named by behavioral, emotional, and cognitive. Each of these aspects of autonomy is important to the development of young people. The development of autonomy does not happen at one point in time and can generally occur throughout the human development (Steinberg, 2001). In current study, we focus on cognitive autonomy which represents an adolescent' ability to think independently. One way to measure adolescent independent thinking is to estimate adolescents' ability to evaluate their own thoughts, voice opinions, make decisions; self-evaluate, and capitalize on comparative validations (Beckert, 2007).

This third side of autonomy, independent thought, has received less attention in research compared to other twos facets. Adolescence stages are a proper time where peer interactions increase (Allen et al., 2002). Therefore, we can say that peers serve as guides in the formation of identity as adolescents start building a sense of self that is independent from their family. When adolescents behave independently in interpersonal situations, they are better to evaluate alternatives and avoid adverse risk-taking outcomes.

PROBLEM STATEMENT

Most research studies concerning adolescent autonomy continue to focus on behavioral and emotional autonomy, but cognitive

independence has received less attention from previous studies (Beckert et al., 2012). Previous studies have also emphasized on the importance of both culture and gender with respect to all facets of adolescent development and not only cognitive autonomy. Researching and understanding cognitive autonomy in adolescent's stages as it relates to other aspects of adolescent's behaviours may lead to new interventions in cognitive development or rather cognitive autonomy. Although many theorists believe cognitive autonomy develops over time in a fashion like Piaget's formal operations, no study has specifically attempted to identify cognitive autonomy development on how school's academic results, hours spent alone, time television watching, computer using, and reading effect on cognitive autonomy of adolescents have been relatively undiscovered.

This study uses a descriptive design to compare cognitive autonomy in early adolescence to young adulthood. Male and female participants from middle school and high school in Malaysian schools were asked to answer a survey consisting of five elements of cognitive autonomy: evaluative thinking, voicing opinions, comparative validation, decision making, and self-assessment. In addition, this study was conducted to identify the development of cognitive autonomy as it related to the participants' scores between grade levels of middle and high school students. The present study focuses on answers to the following research questions:

1) Are there significant differences in cognitive autonomy based on gender among adolescents?
2) Are there significant differences in cognitive autonomy among adolescents in middle and high school students?
3) How do school grades, hours spent alone at home, watch television, using computer, and reading relate to cognitive autonomy of adolescents?

LITERATURE REVIEW

Autonomy

The origin of autonomy comes from the Latin word "autos" which means "self'' and "nomos" meaning "rule." This concept was brought

under deeper examination by famous theorist, Erik Erikson through developing his eight stages of development (1963). In the second stage of psychological development, Erikson outlined that successful completion is dependent on the dichotomy of autonomy versus shame and doubt. Moreover, Erikson believed that in this phase if children do not complete it successfully, they will be shamed or feel weak during their independency, and this will result in unneeded dependency on others, lack of self-esteem and doubting own capabilities. At the same time, in order to foster autonomy, at this phase, the children should get support to increase their independency by being confident in their own ability to live in this world.

The sense of autonomy could be developed through close relationship with family members and friends. Generally, at this age or before, adolescents start having the ability and control on their own behaviour. In addition, adolescents are easily influenced by their friends, for this reason, they need to learn healthy self- governance (Spear & Kulbok, 2004). There are three kinds of self-governance: behavioural, emotional, and cognitive autonomy, however, in this study our focus is on the third one (cognitive autonomy).

Cognitive autonomy

Cognitive autonomy involves the decision-making processes and actions resulting from those decisions (Domenichelli, 2011). Increasingly adolescents are "maturing" at greater rates. They might be maturing earlier physically which leads to increase social responsibility and yet in the field of cognitive autonomy, adolescents do not reach maturity until their mid-twenties. The most important indicator of developed cognitive autonomy is the ability to make decisions independent of the effects of others (Beckert, 2007; Steinberg & Morris, 2001; Zimmer-Gembeck, 2001). Like many of his peers, Troy Beckert reported that cognitive autonomy is more than a decision-making. He confirms that cognitive autonomy is multi-faceted and comprised of five scales: evaluative thinking, voicing opinions, comparative validation, decision making, and self-assessment.

Cognitive autonomy is an essential factor in adolescence stage because it provides teenagers the skills that can help them to control

their own lives and make good choices (Beyers et al., 2003). When positive cognitive autonomy is prominent, adolescents are able to avoid negative behaviours that could lead them to social ill situations such as teen pregnancy, drugs, alcohol, and juvenile incarceration. Teenagers usually depend on tips and advice from others to make their decisions and this advice is generally sought from their friends and may not include autonomous thinking. When an adolescent develops cognitive autonomy, it gives him or her the capabilities to negotiate and compromise conflicts, expresses their own opinions, and appreciates differing perspectives from their own which leads to developing their self-regulation ability (Allen et al., 2002).

Specific Aspects of Cognitive Autonomy

1. Evaluative Thinking

Setting goals, evaluating the negatives and positives of options to achieve the determined goals, and learning from the outcomes of the action are ingredients of the decision-making process (Miller & Byrnes, 2001; Zimmerman, 1990; Domenichelli, 2011). This element of cognitive autonomy (evaluation thinking) includes all of the above sequence of events. Evaluation of thinking tells us that the adolescent is using the skills associated with metacognition within the framework of setting goals and making options to achieve these goals.

2. Voicing Opinion

Voicing opinion involves students' ability to express and clarify what they desire or to express their beliefs and opinions. Students who show a more powerful voice also acknowledge more ownership in the school across academic and procedural platforms. Stronger relationships with instructors and school adults also directly result from the ability to voice opinion (Mitra, 2004).

3. Comparative Validation

Theorists have speculated that the most significant adolescent transition that usually occurs is that shift from parent-oriented to be peer-oriented (Bednar & Fisher, 2003). Peer pressure is vital to

the extent that the increase in peer effect results from adolescents' perception of positive or negative results linked with the reactions of their peer groups to choices they choose (Bednar & Fisher, 2003; Manning, 2007). Associated to other aspects of cognitive autonomy, peer influence is particularly strong in the element of risk-taking behavior (drugs, alcohol and sex), as well as those behaviors linked with academic and social constructs aspects. Thus, comparative validation indicates how much individuals compare themselves to others for acceptance or for a measure of their success.

4. Decision-Making

During adolescent stage, students increasingly make their own decisions because they move through their school and social environments. Decision making for this age group reflected in actions about risk-taking behaviors, including drugs and alcohol, peer effect, and success in their academic environment (Greene et al., 2004; Zimmer-Gembeck & Collins, 2003). In the academic field, the structure of high schools imposes students to become "self-directed and independent learners," which disconnects from the environment of their middle schools (Kohler & Field, 2003; Lampert, 2005) Setting goals and then making choices to achieve their goals are the main ingredients in the decision-making process. For adolescents, during the shift from middle to high school, these main ingredients are still developing (Zimmer-Gembeck & Collins, 2003; Zimmerman, 1990).

5. Self-Assessing

Self-assessment happens when students are behaving independently and can reflect on their own actions and evaluate those actions. This may include the evaluation of the process, reasons for actions being taken or not taken, or rather evaluation of success achieved in actions taken (Zimmerman, 1990). Furthermore, self-assessment is related with a learning stage in which the adolescents evaluate their behaviors and thought processes and then evaluate their own abilities. According to (Beckert, 2007), an essential element of cognitive autonomy is self-assessment where the adolescents will make their own self-assessment and if they consider themselves to be the best judge of their own strengths, abilities, and talents.

Potential Influences on Cognitive Autonomy

Although Montemayor (1982) examined the effect that spent hours at home alone, the type of conflicts adolescents have with their parents, and involvement with parents and peers in how they are interrelated, there is very few that discusses the connection of time spent at home alone and the affect it has on cognitive autonomy. Arnett (2005) reported that there is a lack of integration in the socialization of adolescents, in the aspect of that they may receive socialization messages from media (and peers) than they do from the members in their environment. Studies examining the connection between hours of television watched and cognitive autonomy, however, have not been conducted (Thompson, 2006). We could consider the impacts of gender, school grades, family life, media and computer using as potential areas that contribute to differences among adolescents.

METHODOLOGY

Research Design

This research quantitatively evaluated data contained from responses of the students to the Cognitive Autonomy and Self-Evaluation questionnaire. Descriptive design was used for this study to assess how adolescent scores differ on the CASE between middle and high school students in Malaysia, how scores of students vary based on gender, and how areas of cognitive autonomy related to (1) school grades, (2) hours spent alone at home, (3) hours spent watching TV, (4) use of the computer, and (5) reading process. The current study was based on responses from adolescents and young adults attending middle and high school in state of keddah in Malaysia.

Instruments

The purpose of the Cognitive Autonomy and Self-Evaluation (CASE) inventory is to enable students to self-describe on the five domains of independent thinking (Beckert, 2007). The CASE questionnaire examined the following areas of cognitive autonomy among adolescents: (1) students' ability to use evaluative thinking,

(2) students' ability to voice opinions, (3) students' ability to make decisions, (4) students' ability to self-assess, and finally (5) ability to use comparative validation. Demographic questions examine the students based on the following areas: gender, school grades, hours spent alone at home, hours spent watching television per week, hours spent on the computer using each week, and hours spent reading per week. The questionnaire consists of 27 Likert-type items 5-point Likert scale. Always, Often, Sometimes, Seldom, and never, or strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree are the choices in this inventory.

Sample

For the purpose of this study, we used convenient sampling. All participants were attending middle school and high school in Kedah, Malaysia. Participants in this study consisted of male (50%) and female (50%) students from middle and high school grades.

ANALYSIS AND FINDINGS

In the current study, independent variables included gender, school level (middle or high school), respondents' grades, hours spent watching television, hours spent reading per week, hours spent using computer per week, and hours spent at home alone each weekday. In this study, only 94 answered out of 100 questionnaires distributed among middle and school students. The respondents in this study were 52 males and 42 females, and based on school level, there were 49 middle school and 45 high school students.

Gender Differences

The analysis highlighted that the high school participants' gender was not statistically significant on the *CASE* scales (evaluative thinking, voicing opinions, comparative validation, decision making, and self-assessment). For secondary school students, evaluative thinking ($p = 0.032 > 0.05$) and making decision ($p = .033 > 0.05$) both showed a significant difference between male and females. In each part, females reported themselves higher than males to use evaluative thinking (M

= 3.54, SD = 0.61) and make decisions (M = 3.85, SD =0.52).

School level Differences

This showed how students' scores on the CASE inventory differ among adolescents in the middle and high school years.

A significant difference was found in evaluative thinking (p = 0.01>0.05), comparative validation (p = 0.02>0.05), and decision-making (p = 0.01 >0.05). In evaluative thinking, high school students (M= 3.71, SD = 0.51) rated themselves significantly higher than middle school students (M= 3.36, SD = 0.66) and decision-making (M = 4.17, SD = 0.49). In the field of comparative validation, middle school students (M = 3.18, SD = 0.63) rated themselves significantly higher than high school students (M =3.05, SD = 0.64).

Independent Variables

School Grades

The results showed a significant difference (p = 0.01> 0.05) in the field of voicing opinions with students who rated themselves above average grades (M = 3.7, SD = 0.65) rating themselves higher scores in their readiness to voicing opinion compared to students who received average or below average grades (M = 3.26, SD= 0.7). Additionally, same scores for high school students' self-reported school grades for each scale. There are significant differences (p = 0.04 > 0.05) in the aspect of voicing opinion with students who rated themselves above average grades (M = 3.59, SD = 0.6) rating themselves higher scores in their ability to voicing opinion compared by students who got average or below average grades (M = 3.48, SD = 0.78).

Television Watching

The results highlighted that middle school participants differed significantly in evaluative thinking, (p = 0.01 >0.05), and self-assessment, (p = 0.01 > 0.05) based on the amount of hours spent watching TV. Middle school students who reported spending more than 6 hours watching TV each week (M = 3.08, SD =0. 79) were

significantly less effective at using evaluative thinking than either the 0-3-hour group (M= 3.5, SD = 0.67) or the 3-6-hour group (M= 3.6, SD = 0.77). Also, the students who reported spending more than 6 hours watching television each week (M = 3.39, SD = 0.84) were significantly less effective at ability to self-assess than either the 0-3-hour group (M = 3. 77, SD = 0. 78) or the 3-6-hour group (M = 3.97, SD = 0.7).

High school participants differ significantly in areas of evaluative thinking, (p = 0.02) and decision-making (p = 0.03) according to hours spent watching TV. High school participants who reported spending 0-3 hours watching TV each week (M = 3.59, SD = 0.62) were significantly more effective in evaluative thinking than the 3-6-hour group (M= 3.07, SD =0.6) or the 6 or more-hour group (M = 3.34, SD = 0.72). Likewise, high school students who reported spending 0-3 hours watching television each week (M = 4.2, SD = 0.5) were significantly more effective in decision making than the 3-6-hour group (M = 3.88, SD = 0.44) or the 6 or more hour group (M = 4, SD = 0.51).

Time Reading

Middle school respondents differed significantly in areas of evaluative thinking and (p = 0.04) and voicing opinions, (p = 0.01) according to the amount of time of reading. Middle school participants who reported spending 6 or more hours reading each week (M= 3.62, SD = 0.84) were significantly more effective at using evaluative thinking than either the 0-3-hour group (M = 3.09, SD = 0. 71) or the 3-6-hour group (M = 3.22, SD = 0.48). Likewise, middle school who reported spending 3-6 hours reading each week (M = 3.87, SD = 0. 72) were significantly more effective in voicing opinion than the 0-3-hour group (M = 3.24, SD =o.6) or the 6 or more hour group (M = 3.75, SD = 0.72).

High school participants different significantly in the area of evaluative thinking (p = 0.03) based the amount of time reading. High school students who reported 6 or more hours reading each week (M = 3 .64, SD = 0.41) were significantly more effective at using evaluative

thinking than the 0-3 hours group (M = 3.23, SD = 0.67) and the 3-6-hour group (M = 3.18, SD = 0.61).

Computer Use

In this section for each school level, the scores of participants on CASE did not show significant differences by time spent using the computer each week and subgroups of cognitive autonomy.

Time Spent at Home Alone

Middle school students have different significant in fields of evaluative thinking (p = 0.02), voicing opinion (p = 0.02), making decision (p = 0.02), and self-assessing (p = 0.042) based on the amount of time they spent at home alone. Middle school participants who reported that no time spending home alone were significantly more effective at using evaluative thinking (M = 3.56, SD = 0.68) than the 1-2 hour group (M= 3.52, SD = 0.66) or the 3 or more hour group (M = 3.08, SD = 0.9). In addition, middle school students who reported spending no time home alone were significantly more effective at voicing opinion (M = 3.64, SD = 0.67) than the 1 to 2-hour group (M= 3.59, SD = 0.64) and the 3 or more hour group (M = 3 .29, SD = 0.9). middle school students who reported spending no time home alone were significantly more effective at their self-assessment (M = 3.95, SD = 0.65) than the 1 to 2-hour group (M= 3.7, SD = 0.85) and the 3 or more-hour group (M= 3.5, SD = 0.84). Middle school students who reported spending 1 to 2 hours home alone were significantly more effective in making decisions (M =4, SD =0.53) than the no time home alone students (M= 3.95, SD = 0.45) and the 3 or more hour group (M = 3.65, SD = 0.68). There are no significant differences in any of the scale areas for high school students' self-reported time spent home alone each week.

DISCUSSION

The first research question focused on how scores would differ on the *CASE* inventory based on gender for each sample group. For middle students, evaluative thinking and decision-making were the only

scales that reported significant differences between genders. Females scored higher than boys in evaluative thinking and decision-making. This finding is linked to the results of Schvaneveldt and Adams (2001) and Thompson (2006) where they hypothesized that males, when making decisions, are more likely to plan out their decisions, while females are more likely to use an intuitive approach when making decisions. When evaluating their thinking and decision-making, females' intuitive reaction may prove to be more autonomous than the males. This study found that gender was not a significant factor in this study of autonomy among students, females in middle school rated themselves higher than males in every CASE scale. For high school students there were no significant differences based on gender.

The second research question focused on how scores of students on the CASE inventory differ among middle and high school students. High school students scored themselves higher than middle school students in ability to evaluate their thinking and make decisions. These results are related to the literature of Caskey and Ruben (2003), which states that the frontal lobe of the brain that controls planning and evaluation, which for middle students is not fully developed yet. In the field of comparative validation, high school students illustrated a decrease in comparison to middle school students. This decrease is consistent with Bednar and Fisher (2003) who argue that adolescents shift from being parent-oriented to being peer-oriented at this period.

The third research question focused on how the participants self-reported school grades, hours spent at home alone, watch TV, using computer, reading, are related to their cognitive autonomy.

School grades

Both students from middle and high school showed significant differences in voicing opinion. The students who have high grades scored high level of voicing opinion. Middle school students who rated themselves having high ability to voice their opinion, scored themselves high in their grades. These results liase with literature which reported that students who participate in class with verbal comments also show higher academic grades (Finn & Cox, 1992).

Watching TV

In this aspect, there are significant difference in the areas of evaluating thinking and self-assessment among secondary school students. Students who watch TV more than 6 hours rated themselves less effective in evaluative thinking and self-assessment compared to students who scored 0-3 hours or 3-6 hours groups. While high school students showed significant difference in the areas of evaluative thinking and making decision, students who scored 0-3 hours were more effective in the two areas compared to 3-6 hours and more than 6 hours groups.

Time Spent Reading

There is significant difference in the areas of evaluating thinking and voicing opinion among middle school students. Students who read more than 6 hours each week rated themselves more effective in evaluative thinking compared with students who scored 0-3 hours or 3-6 hours' time spent reading groups, while the students who scored 3-6 hours' time spent reading each week were more effective in voicing opinion than the other two groups (0-3 hours, more 6 hours). High school students showed significant difference in the area of evaluative thinking only. The students who spent more than 6 hours reading each week were more effective in the evaluative thinking compared to 0-3 hours and 3-6 hours groups. These results show the importance of time spent reading on the ability to evaluate one's thoughts and opinions among adolescents.

Computer Use

In this section for each school level, the scores of participants on CASE did not show significant differences for time spent using the computer each week in relation to subgroups of cognitive autonomy.

Time Spent Home Alone

There are no significant differences in any of the scale areas for high school students' self-reported time spent home alone each week.

Middle school students showed a significant difference in four of the five scale areas of cognitive. Those who rated themselves highest in the areas of evaluative thinking, voicing opinions, and self-assessing rated themselves as not spending time alone at home. However, students who spent 1-2 hours alone were more effective in making decission.

CONCLUSION

This study was conducted with the intended target of contributing to the comprehensive understanding of cognitive autonomy and its importance among adolescents and their development. In this research, one trend that appeared was that cognitive autonomy increases parallel with maturity of adolescents. Future studies could determine how cognitive autonomy develops among ethnicities and different socio-economic conditions as well as among religions. Such study could provide helpful suggestions for improving adolescents' independence, such as programs to foster autonomous thinking or parental training programs to help parents cope with and facilitate the development of their children's cognitive autonomy.

Students in this study reported a significant difference in their academic grades and increase in autonomous thinking when they read three or more hours a week. This is a trend among all the participants. So, the programs which promote the habits of reading to enhance autonomous thinking that may leave a deep impact on adolescents' development.

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