

## **European Journal of Education Studies**

ISSN: 2501 - 1111

ISSN-L: 2501 - 1111

Available on-line at: www.oapub.org/edu

doi: 10.5281/zenodo.439990

Volume 3 | Issue 5 | 2017

# SCRUTINIZING EMPATHY FEELING WITHIN SCHOOL BULLYING STUDENTS

## Mohammad Fakhri<sup>1</sup>, Punadji Setyosari<sup>2</sup>, I. Wayan Ardhana<sup>3</sup>, Nur Hidayah<sup>4</sup>

<sup>1</sup>State Islamic University of Mataram, Indonesia <sup>2</sup>Department of Educational Technology, Faculty of Education, State University of Malang, Indonesia <sup>3</sup>Department of Educational Psychology, Faculty of Education, State University of Malang, Indonesia <sup>4</sup>Department of Guidance and Counseling, Faculty of Education, State University of Malang, Indonesia

## **Abstract:**

This study aims at explaining the characteristic of cognitive empathy and affective empathy within school bullying students on Madrasah Aliyah Al-Barokah Mataram. This study is a case study with the subject of study are four students of school bullying which is identified by school cumulative record, one counseling teacher, and two classroom teachers. The data of the study were obtained through interview, field observation, photos documentation, as well as personal and school document. The data were in the form of spoken or written discourse and observable behavior and attitude of the object. The data, then, were analyzed through data reduction, data exposition, and conclusion or data verification. The result of the study showed that the empathy of the school bullying students was dominantly influenced by social and family circumstance. The characteristics are 1) ethnic perspective taking in which the students are not able to take other's perspective. They could not put themselves in the other's shoes well, 2) empathic feeling and expression in which the students could not feel empathy to the other who possesses different value, cultural, and custom background.

**Keywords:** empathy characteristic, school bullying students, cognitive empathy, affective empathy

## 1. Introduction

Education essentially aims at preparing a notable individual. One indicator of being a notable individual is becoming an effective people in which they seek, first, to understand then to be understood. Empathy portrays a core value within social circumstance. The moment we share, love, cooperate, and give, it is the moment when our empathy works. Instead, the relationship will be crumbled when the empathy is gone. Some examples that serve as imperative indicator of the absence of empathy are violence, abusing, discrimination, and selfish attitude. It is, therefore, highly suggested for parents and teachers to preserve and disseminate the moral and value within the children as the next generation and member of society. Empathy takes a part in establishing a good individual who possesses a high moral standard and descent customs. In addition, empathy is the ability to understand and share the feelings of another which is important to strengthen the relationship within social circumstance. The value of social life disseminated will establish a character which becomes a basic foundation within civilized society. On the other hand, individual who possesses less feeling of empathy will have high level of aggressiveness and as a result, it has a high risk within social circumstance.

Empathy is an important psychological mechanism. Goleman (1995) argues that empathy is more important than intelligence since it is more complicated and essential within current context of social circumstance. Possessing good feeling of empathy, the individual will be able to establish effective relationship which is able to understand another feeling.

In the recent situation of 21<sup>st</sup> century, almost all living aspect is changing such as politic, economy, socio-culture, and law. In line with this changing, Indonesians are faced a multi-dimensional issues and challenges related to the living aspect of human being. It is not only dealing with economy, but also social, culture, and morality. Several issues are raised within social circumstance of Indonesians such as lack of dedication, discipline, empathy feeling toward social issue, and ineffective communication. It is clearly showed that there is a severe problem within individual regarding personal and social circumstances. In addition, these problems are apparently existed in the everyday life for example individualistic, selfish, ignorance, apathetic, irresponsible, and discouraged in communicating or interacting as well as less empathy.

The research conducted by Nones et al., (2004) which take a depth look upon the relationship between empathy and bullying actor show a positive result regarding the above-mentioned relationship. In addition, it was discovered that the major cases existed within young teenager and adolescent. Within bullying phenomenon, Olweus (2010) discovers that one characteristic of those bullying actors is the low ability of empathy toward their victims.

In the context of education, students will be classified as student at risk if they are not able to be empathy (Cotton, 2004). This is due to the absence of emotional bonding of the students among school community. Students who possess less emotional bonding among school community most likely will have disrupted process within their education. Within Regulation of National Education System 2003 Section 1 Article 1, it is stated that education is a conscious and projected attempt to establish a conducive education environment in order to create an active participation to develop their potency such as spiritual, self-management, personality, intelligent, morality and any skill required for being a contributive society. Further, education aims at generating a civilized nation and society which possesses a high standard of moral value. Thus, it is correct and strategic in putting education as a primary means to develop nation in order to face a global challenge. Supplementary, education is also an important element in the recent development of globalization to create a competitive individual which is able to face any possible challenges in the future. Therefore, it is a strategic answer for better social changing process.

The aim of education in Madrasah Aliyah generally intends to improve knowledge, potential development which is in line with science, technology, art and Islamic value as well as enabling the individual as a qualified member of social community in regard with social, culture, and surrounding environment which is befitting Islamic value (Kemenag no. 370. 1993). In addition, it is expected that the students could take an active participation to develop their potency for being qualified individual in terms of intelligent and spiritual ability. Madrasah Aliyah is an Islamic religious school in which the biggest portion of education is related to Islamic values and teaching compare to general school. This aims at establishing the students' attitude which in line with spiritual teaching believed by the school.

## 2. Method

This research was a field research using qualitative approach. Qualitative approach was used to describe the characteristic of students' empathy of school bullying students in Madrasah Aliyah Al-Barokah Mataram as well as the facts obtained during field observation. However, this approach is not intended to generalize any explanation, theory, or model. This research aims at producing descriptive data in the form of written or spoken data, as well as the observable object's attitude and behavior. Therefore, the output of this research is a description of written and spoken data, utterances, description of attitude and behavior, and pictures instead of numbers. The data were obtained through interview, field note taking, photo documentation, personal document, memo or any official document (Miles and Huberman, 1994).

The subjects of this research were four students of school bullying who are identified from cumulative record of the school, one counseling teacher, and two

classroom teacher. Then, the data were obtained through interview, field observation, photos documentation, as well as personal and school document. In addition, the data of this research is a description of written and spoken data, utterances, description of attitude and behavior, and pictures. The data, then, were analyzed through data reduction, data exposition, and conclusion or data verification (Miles and Huberman, 1994).

#### 3. Results

The characteristic of school bullying students' empathy in Madrasah Aliyah Al-Barokah Mataram is dominantly influenced by natural stress response. Those responses were experienced by the students in their social interaction with their friends, teacher, parents, and environment. Within the phenomenon of school bullying students in Madrasah Aliyah Al-Barokah Mataram, they encounter an obstacle in releasing happy chemical hormones such as oxytocin, dopamine, and endorphins. These hormones perform as a controller of warm feeling, positive thought, and relaxation. The characteristic of school bullying students' empathy will be described as follows:

## 3.1 Perspective taking

Within the perspective taking, the school bullying students tend to instantaneously take over another's perspective. In fact, the school bullying students in Madrasah Aliyah Al-Barokah Mataram are characterized as egocentric personality. One of the school bullying students confessed that:

"I don't really care with my classmates. I want to be happy. I have a right to be happy, so I forced him to give his money. His parents are rich and possess a hectares of rice field. But, me? My parents have nothing. They only sell vegetables in traditional market and some times, my father have no job to do."

The utterances confessed by the school bullying student above showed that he was not be able to manage some forces and stresses within themselves. He is difficult in tolerating his daily forces and stresses. When the children experience a continuous forces and stresses in their daily life, subsequently, they will not have an empathic feeling. Their brain and its development primarily depend on the forces and stresses that influence and how to response it. In the opposite case, when both the children and parents are able to control the condition, they also will be able to release their happy chemical hormones well. They will eventually feel warm, have a positive thought and become relax the moment natural opiums are released such as oxytocin and endorphin. This will be occurred the moment they are hugged or experienced an intimate relationship.

The subjects of this study were children who do not experience a good family nurture in which, subsequently, they are difficult to control and manage themselves and have less empathic feeling. In addition, low social interaction ability also contributes to the quality of their social life and subsequently they are not be able to manage their stresses. Further, when they are not able to manage their own stresses, less empathy will occur. It is because when the individual could not resist and manage their own stress, the individual will found a difficulty in understanding and feeling empathy to other. One of the subjects from Madrasah Aliyah Al-Barokah confessed that:

"I don't know who is my father and where he is until now. I live with my mom only. Yet, we have less chance of interaction. My mom need to go to market in the morning to sell and me myself need to go to school. After school ends, I go playing with my friends and sometimes I take a freelance job to earn my own money. My mom never gives me any money. She does not care with my school's necessity and never once to care. I take care myself and all by myself."

The children who experience violence, negligence, traumatic, rejection, and disregard tend to have less feeling of empathy. They most likely have bad self-management, difficult to interact within social circumstance, and have mental disruption. In fact, their young brain continuously receives a forces and pressure along with high degree of stress. This condition occurs since they have bad relationship between themselves and their parents in which they feel anxious. Within this traumatic relationship, human brain could not manage and process stress. As a result, their brain grows into a hypersensitive brain in which it will response hypersensitively to any level of stress even in a very low degree, particularly if it is occurred in social interaction. This circumstance will eventually grow an anxious feeling, aggression, and hyperactivity. Supplementary, it increases heart rate, blood pressure, and cortisol level.

## 3.2 Fantasy

In their daily life activity, the students admitted that they commonly throw a joke toward their classmates. For example, they call their friend "incang" which means "sinchan" for a bad guy in the class as what the anime character "sinchan" is represented in the cartoon. Unfortunately, the object of the joke responses nothing. Sadly, the guy who often throws a joke does not understand the feeling of being a jokes object. They could not place themselves as if they are an object of a joke. Supplementary, they do not understand that their action belongs to a very bad type of communication and this also belongs to verbal abuse.

According to the counseling teacher, the students do not understand that the jokes they throw is sensitive. In fact, this is possible to create a misunderstanding

among them and resulted to a quarrelling. Sometimes, they admit and realize that their jokes are uncompromising and extreme. They also feel uncomfortable with these jokes, yet it comes naturally. The primary function of social interaction, types of empathy, interaction ability, and caring to other explain the social intelligent possesses by the students. Being able to place themselves on the other shoes could improve positive thought and attitude of the individual. The aforementioned trait could be achieved through understanding other's experience or any information provided by media and people surrounding.

Generally, the students possess a limited and narrow perspective upon perceiving other individual. Even, they dominantly possess a negative thought upon individual or their classmates as what is confessed by one of the subject below.

"They (the friend) always smell at rat to me the moment one's property is lost in the classroom. They will automatically suspected at me. If any of us is fighting, they blame me for the cause. I have nothing to say. All the problems in the classroom must be directed to me, all fighting is because of me, and I am the one who stole every lost property. All what is bad is me (1.0012.W.AS.17042016)"

According to Gardner (1998), social intelligent could occur the moment the individual in a positive cognitive condition. It means that people will have well interaction if they are in a good and comfortable mind without any burden or forces of thought within their mind.

In accordance with recent development of neuroscience, it is explained that social life tend to refresh social and behavior sciences. The study suggest that during decision-making, brain, particularly in making a rational decision, should be in a comfortable condition and have no anxious within the mind.

Currently, social intelligent is an isolated field in which most of psychologists neglect this field, even within the scientists of intelligent. However, Mayer and Salovey in Goleman (1980) conduct a study related to emotional intelligent. According to them, Thorndike had come with a study discovering mechanical, abstract, and social intelligent. However, he failed to measure the social intelligent. When emotional localizing within the brain could be well-understood, emotional intelligent could perform to substitute the absence of social intelligent (Mayer, 1980).

## 3.3 Empathic concern

Within the occurrence of social interaction, sometimes it is followed by scattered emotion and physiology of the students in which make the relationship is not well-managed and the empathy feeling is absence. Even, as explained by the counseling teacher, group of students usually fought and resulted a chaos. In the case of high degree of violence and negligence, brain stops processing any information related stress

and it is commonly called as disassociation. Possibly, the students will feel neglected, heartless, and indifference. This condition also makes traumatic which creates the body becomes weak. In addition, it decreases the blood pressure and creates a discouragement of life as stated by the School's Headmasters.

Generally, the students here have minimum control of themselves and have a minimum attention from their parents. Their parents literally neglect them, do not care whether their children come to school or not, no breakfast prepared, no fee paid. Everything is free, but they need to come to school. This is probably the reason why they are feeling discouraged and have no motivation to study.

Brain is placed within the center of stress response system in which stress degree will increase when the brain receive a series of neurologic problems. As a result, it makes nerves become thinner and weak. In addition, it occurs an imbalances in terms of chemical substance within the brain. Afterwards, it makes the sensitivity becomes deficient or abundant within the process of neurology.

Empathic parenting will most likely ensure the comfort and secure feeling of the children. It will eventually optimizing their stress management system. On the other hand, children with less empathic or even no empathic at all will make their stress management system work harder and disorganize. Subsequently, this will terminate their empathy circuit.

Empathy response of the individual within particular circumstance will be different depends on their personality and temperament. For example agreeableness, it represents a diverse trait of the individual. Some people might be kind, delightful, and caring to the other. Further, some people might be kinder than the other, not easily offended and angered than the other.

## 3.4 Personal distress

Empathy is an emotional response that occurs the moment the individual understand other's condition. When people sees other people in an oppressive circumstance, several empathy response that most likely will occur are sympathy, compassion, and benevolence. Personal distress within the school bullying students is presented in the figure 1 below

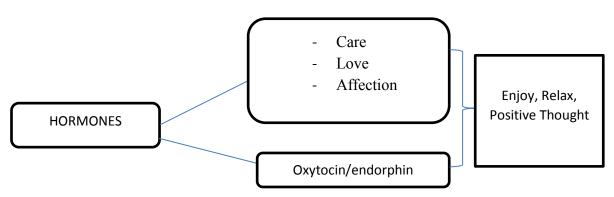


Figure 1: Personal Distress Empathy Model of School Bullying Student

According to the figure above, the children who experienced abuse, negligence, traumatic, and rejection tend to have less empathy feeling since they did not experience care, love, and affection which activate oxytocin and endorphin. These two hormones are able to activate the feeling of joy and relax within the mind. Therefore, it makes the children are able to have a positive thought, control their emotion, and reduce the stress significantly (Howe, 2013).

Within the school bullying students in Madrasah Aliyah Al-Barokah Mataram, they possess bad self-management, are difficult in establishing a social interaction, and undergo an excessive stress. In addition, their brain is afflicted by excessive forces. This is commonly happened due to anxiety within parents-children relationship. Supplementary, the children brain is not capable of processing and managing stress. As a result, their brain becomes hypersensitive, even towards minor stress and traumatic occurs during social interaction. Subsequently, this will initiate anxiety, aggression, and hypersensitivity. Physically, heart rate increases as well as blood pressure and cortisol level.

During the instability and spinelessness of emotion and physiology, any relationship is not well-managed. The feeling of empathy is absence. Even, in the case of excessive violence and negligence, brain stops processing any information related to stress or it is called as disassociation. They, eventually, will feel isolated and secluded, heartless, and alienated. Supplementary, this will also impacted on physical condition. They will have a weak physical and have less encouragement of life.

Brain is located in the center of stress response system. When the individual receives an excessive and chronic stress, a series of neurology problems occur. It makes nerves become weak and fragile. At that moment, there is an imbalance of chemical substance within brain and neurological process occurs. Belatedly, this will initiate and stimulate violent behavior both physically and psychologically.

## 4. Discussion

Relevant with the findings of this study, therefore, this part discusses several characteristics of empathy that occur within the school bullying students in Madrasah Aliyah Al- Barokah Mataram.

## 4.1 Ethnic perspective taking

The students who experienced abuse, negligence, traumatic, and rejection tend to have less empathy feeling, bad self-management, encounter difficulty in their social interaction, and experience a mental disruption as well as brain damage due to excessive stress. This is commonly happened due to anxiety within parents-children relationship. Supplementary, the children brain is not capable of processing and managing stress. As a result, their brain becomes hypersensitive, even towards minor

stress and traumatic occurs during social interaction. Subsequently, this will initiate anxiety, aggression, and hypersensitivity. Physically, heart rate increases as well as blood pressure and cortisol level.

During the instability and spinelessness of emotion and physiology, any relationship is not well-managed. The feeling of empathy is absence. Even, in the case of excessive violence and negligence, brain stops processing any information related to stress or it is called as disassociation. They, eventually, will feel isolated and secluded, heartless, and alienated. Supplementary, this will also impacted on physical condition. They will have a weak physical and have less encouragement of life.

Brain is located in the center of stress response system. When the individual receives an excessive and chronic stress, a series of neurology problems occur. It makes nerves become weak and fragile. At that moment, there is an imbalance of chemical substance within brain and neurological process occurs. Belatedly, this will initiate and stimulate violent behavior both physically and psychologically.

This is the primary reason on why empathy feeling is imperative within ourself since at the very first time of life. It is inevitable that the individual need other individual to be able to manage and organize the stress. Our brain requires social experiences to be able to develop appropriately. In fact, there is an inevitable influence among the individuals in managing and organizing stress appropriately.

In order to generate an optimal and organized stress system within the children, the parents are required to have a joyous empathic parenting which ensures the secure feeling of the children. On the other hand, the children's stress system will be disorganized the moment the parents nurture them with no empathic feeling. Subsequently, it increases stress and anxious level which stop empathy circuit within the mind. During the early development of the children, their brain is shaped and constructed through direct experience. In the context of social ability and emotional intelligent, the prominent development of brain is interpersonal. The quality and character of people around the children strikingly contribute to the development of children and their brain as well. Specifically, the ability of brain in understanding thought and feeling of other people could be developed only if the brain is experienced and received directly the empathy through their own thought and feeling. In order to make the children understand and can developed their own empathy, it is necessary and imperative to establish a good and intimate relationship along with caring and affection within their environment.

As other types of human feeling like intelligent, power, feeling of shame, humour, etc empathy is also classified into particular degree and level. The difference of degree and level is due to biological inherent or experience. It can be said that the quality of individual or personal trait most likely is the result of dynamic relationship of genetic and environment, inherent and nurturing, biological and experience. Lewin (1936) also argues that behavior is a function from a person and circumstance around

them. Different individual in same circumstance may have different approach on the circumstance. This proves that personality and tendency factor could represent individual's mind, thought, and response on particular circumstance (Leary and Hoyle, 2009). In general, opinion, it is argued that gender and sex contribute to the empathy feeling of the individual, yet other factors also contribute as well including personality, temperament, and cultural background.

If in particular population, boys are compared with girls, somehow, boys have less ability in reading emotion of other people and interest upon the other people's thought and feeling (Mehrabia, 1988). Within the friendship among girl, they commonly share an openness and empathy. On the other hand, within the friendship among boys, they commonly tend to share togetherness and fellowship. Boys usually do particular thing together along with their gang (Vernon, 2010). However, it is commonly considered that girls tend to be more empathic than boys.

The aforementioned statement is supported by the theory of gender differences on empathy feeling which argues that particularly; girl's brain is stronger than boy's in understanding and establishing system within the mind (Baron and Cohen, 2004). Generally, boys are well-systemized individual. Well-systemized individual tend to analyse, explore, and figure out how things happen and find any rules and basic principles which organize particular system such as machine system process, organisms process, computer program and system or physical phenomenon.

The feeling of empathy could be established by giving acting the good example through daily habitual. According to Lickona (1991), by habituating individual a value of acting good, it can eventually activate a response upon particular circumstance which based on communal moral belief through a direct action such as kindness, honest, responsible, and respect. Behavior is inseperable with habitual or daily customs of individual. In addition, Aristoteles (in Lickona, 1991) argues that habituating value will assist them in making a good decision, managing what is supposed to be managed, and they are eventually able to conduct an acting of good within their daily activity. It is better to repeat the good behavior, and then strengthen this behavior by giving reward and punishment if the children fail to do so.

## 5. Conclusion

Generally, this study aims at portraying and describing the characteristic of empathy within school bullying students in Madrasah Aliyah Al-Barokah Mataram. According to the obtained data related to the phenomenon of school bullying occurred in Madrasah Aliyah Al-Barokah Mataram, there are two major characteristics found as follows:

**A.** Ethnic perspective taking. The empathy characteristic of ethnic perspective taking is a characteristic of empathy in which the individual dominantly considered the similar background in terms of social and culture. Relatively, students in Madrasah Aliyah Al-

Barokah Mataram possess similar social and cultural background. The empathy characteristic of ethnic perspective taking within the school bullying students of Madrasah Aliyah Al-Barokah Mataram was generally constructed and established through their social life. In this characteristic, the environment of family, friendship, social and local culture contribute the most.

**B.** Empathic feeling and expression. This characteristic showed that the students are difficult to have a feeling of empathy toward other people who possess different values, moral, and culture. The two characteristics mentioned are dominantly influenced and constructed through parenting style of their parents as well as their environment condition. The student who obtains less attention and affection from their parents as well as pressure from their social environment and being secluded will eventually obstruct the chemicals message within their brain which produces oxytocin and endorphin. Both oxytocin and endorphin could activate warm feeling, positive thought, relax feeling, enjoy and etc.

## 6. Suggestions

In this part, the researcher would like to address several suggestions for related parties in this study.

For teacher in Madrasah Aliyah Al-Barokah: the researcher suggests the teacher of Madrasah Aliyah Al-Barokah Mataram to conduct more school activity or learning activity which is oriented on the development of social aspect as well as the student's emotion. In addition, it is better to establish a cooperation between school and parents through home visit.

For future research: the researcher suggests the future researcher to examine further (a) empathy measurement, (b) ethnocultural empathy, (c) altruism empathy, and (d) empathy accuracy. This aims at discovering recent and advanced theory regarding empathy which is more substantial and applicable in implementing and constructing empathy feeling within students in education circumstance.

#### References

- 1. Al-Rodhan, N. R. F. (2006). Definition of Globalization: A Comprehensive Overview and a proposed Definition. Geneve: Program on the Geopolitical Implications of Globalization and Transnational Security. Retrieved from <a href="https://www.scribd.com/doc/56147025/Definitions-of-Globalization-A-Comprehensive-Overview-and-a-Proposed-Definition">https://www.scribd.com/doc/56147025/Definitions-of-Globalization-A-Comprehensive-Overview-and-a-Proposed-Definition</a>.
- 2. Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: an investigation of adults with Asperger syndrome or high functioning autism, and

- normal sex differences. Journal of Autism and Developmental Disorders, 34(2), 163-175.
- 3. Bogdan, R. & Biklen, S. K. (1992). *Qualitative Research for Education; An Introduction to theory and Methods*. Nedham Heights: A Divison of Simon Schuster., Inc.
- 4. Cotton, K., (2004). Developing Empathy in Children and Youth. *School improvement research series: Close-up* 13. Northwest Regional Educational Laboratory.
- 5. Davis, M. H (1983). Measuring individual differences in empathy; Evidence for multidimensional approach. *Journal of Personality and Social Psychology*, 44(1), 113-126.
- 6. Gardner, H. (2006). Multiple Intelligences: New Horizons. New York: Basic Books.
- 7. Goleman, D. (1995). *Emotional Intelligence: Why it can matter more than IQ*. New York: Bantam Books.
- 8. Howe, D. (2012). *Empathy: What it is and Why it matters*. United Kingdom: Palgrave Mcmillan.
- 9. Karen E. Gardes; Elizabeth A Segal (2009) *A Social Model Of Empathy.* Journal Social Psychology at Arizona State University.Vol.10.No.2.114-127. USA. New York.
- 10. Kementerian Pendidikan Nasional Pusat Kurikulum. 2009. Pengembangan dan Pendidikan Budaya dan Karakter Bangsa: Pedoman Sekolah.
- 11. Lickona, T. (2004). Character Matters. New York: A Touchstone Book, Published by Simon & Schuter.
- 12. Miles; Huberman (1994) Qualitatif Data Analysis, Second Edition; London Sage Publication. Inc.
- 13. Nones, A. P., Happe, F. G., Gilbert, F., Burnett, S., & Viding, E. (2010). Feeling, caring, knowing: different types of empathy deficit in boys with psychopathic tendencies and autism spectrum disorder. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 51*(11), 1188-1197. doi: 10.1111/j.1469-7610.2010.02280.x

## Mohammad Fakhri, Punadji Setyosari, I. Wayan Ardhana, Nur Hidayah SCRUTINIZING EMPATHY FEELING WITHIN SCHOOL BULLYING STUDENTS

#### Creative Commons licensing terms

Author(s) will retain the copyright of their published articles agreeing that a Creative Commons Attribution 4.0 International License (CC BY 4.0) terms will be applied to their work. Under the terms of this license, no permission is required from the author(s) or publisher for members of the community to copy, distribute, transmit or adapt the article content, providing a proper, prominent and unambiguous attribution to the authors in a manner that makes clear that the materials are being reused under permission of a Creative Commons License. Views, opinions and conclusions expressed in this research article are views, opinions and conclusions of the author(s). Open Access Publishing Group and European Journal of Education Studies shall not be responsible or answerable for any loss, damage or liability caused in relation to/arising out of conflicts of interest, copyright violations and inappropriate or inaccurate use of any kind content related or integrated into the research work. All the published works are meeting the Open Access Publishing requirements and can be freely accessed, shared, modified, distributed and used in educational, commercial and non-commercial purposes under a Creative Commons Attribution 4.0 International License (CC BY 4.0).