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Exploratory Factor Analysis of Wellbeing among Junior-Secondary-School Students in Northeastern Thailand

[1]Pornpen Somaboot and [2]Buapun Promphakping
[1]Department of Development Science,
[2]Department of Social Development, Faculty of Humanities and Social Sciences,
Research Group on Wellbeing and Sustainable Development (WeSD),
Khon Kaen University, Khon Kaen, Thailand

Abstract: This research study aims to explore the components of wellbeing among junior-secondary-school students in the Northeastern Region of Thailand. The multistage random sampling method is applied to select 450 junior-secondary-school students from 6 schools located in 3 provinces in the Northeastern Region. A survey of student wellbeing is applied as the research instrument and the data are analyzed using the exploratory factor analysis method. The research findings include 8 components and 47 variables of student wellbeing. The components of wellbeing are teachers and teaching methods, physical environment, health conditions, family and family supports, security of life and property, relationship and community supports, trustworthiness and curiosity in learning and mental supports. The results of the analysis suggest that in addition to academics, learning achievement assessments should be based on learning atmospheres (for both the in-school and out-of-school environments), social relations, student characteristics and health conditions.

Key words: Student wellbeing, components of student wellbeing, junior-secondary-school, Northeastern Thailand, method, sewrity

INTRODUCTION

The concept of wellbeing has been widely applied in global education institutions for decades. Wellbeing has been applied as a framework of educational development in countries such as Australia, the Netherlands and Finland. United Nations Children's Fund defined wellbeing from different views. From a health care perspective, wellbeing is explained in terms of student wellness which includes physical and mental conditions. On the other hand, from a psychological perspective, wellbeing is a condition that is evaluated using student's satisfaction with themselves and with the environments they are living in. In addition, wellbeing can be defined as a condition in which students are able to achieve their desires. A crucial condition that supports student achievement is the socioeconomic context which is a determinant of both student's wellbeing and their perceptions of their wellbeing (Allardt, 1976, 1989; Knowles and Lander, 2011; Zhan, 1992). Although, the concept of wellbeing has been broadly introduced, academics and educators have been discussing gaps in this concept. Several academics state that most definitions of wellbeing are based on theories and policies (Ben-Arieh, 2005; Camfield *et al*., 2009). These definitions are limited in their applications to various sociocultural contexts because wellbeing is socially constructed. In Thailand, educational development has been focused on learning achievement and test scores. Regarding learning achievement, the quality of education is lower for the schools in the Northeastern Region than for those in other Regions of Thailand (NIETS., 2015). Although, many educational institutes have started implementing the concept of wellbeing, it is unclear which methods or processes are being implemented. In addition, the stakeholders in the community schools have not been interested in the development of wellbeing indicators or in defining wellbeing.

Theoretically, wellbeing is influenced by sociocultural context. Therefore, it is important to provide a clear definition of wellbeing before constructing its indicators. Therefore, this study starts by defining wellbeing based on the opinions of students and other stakeholders in junior secondary schools the goal is to find out the components of wellbeing in a local context. The study's output will be advantageous in improving student's wellbeing and the quality of education in Northeastern Thailand.

Corresponding Author: Pornpen Somaboot, Khon Kaen University, Khon Kaen, Thailand

MATERIALS AND METHODS

Student wellbeing: The first definitions of student wellbeing were generally focused on wellness both physical and mental. Student wellbeing has also been defined in terms of wellness circumstances such as lack of illness, lack of stress, survival and having one's basic needs met. These aspects have been grouped into the category of social indicators (Soutter, 2011).

In 1989, the United Nations Refugee Agency (UNRC., 1989), published its Universal Declaration of Human Rights and the Convention on the Child and Human Being. These declarations mentioned wellness as having 4 domains: physical, mental, spiritual and social. The domains are based on the conditions of freedom and human dignity. Since, that time, several educators have applied these domains in studies to construct components and indicators of student wellbeing (Camfield *et al*., 2009; Masters, 2004).

Psychologists have been broadly interested in the study of student wellbeing. Psychologists define wellbeing in terms of subjective components such as whether a student experiences happiness and life satisfaction (Balatsky and Diener, 1993; Kahneman *et al*., 1999). Life satisfaction is used to evaluate an individual's wellbeing based on self-imposed criteria. This kind of evaluation balances between perception, purpose and achievement. For instance, if an individual's perception does not match his or her purpose and achievement, the degree of satisfaction would be low. In addition, several researchers have suggested that satisfaction is caused by positive individual characteristics such as the student's purpose in life and cultural context (Ryff and Singer, 2008). The use of satisfaction as a wellbeing indicator is a paradigm shift within wellbeing evaluation this shift is away from negative-indicator-based evaluations such as those related to risk and toward positive-indicator-based evaluations. Some academics have suggested that negative indicators contribute by focusing more on resolving problems and that they barely focus on student efficiency (Ben-Arieh, 2006).

In Thailand, the study of student wellbeing first focused on fundamental domains including quality of life, health and happiness. High student quality of life has been defined as having good living conditions and receiving services from the school that can strengthen student wellness. Quality of life can be evaluated using student satisfaction and behavior in relation to teachers, the school and the curriculum (Anonymous, 1989, 2002; Soontornvipart, 1997; Thongtamleung, 2009).

Later on, student happiness was included in national education policy for the National Education Acts of 1999 and 2002 and for the Basic Education Act of 2001 which together state that national education shall help the Thai people achieve wellness and happiness. Amornwiwat applied the concept of student happiness in their study in which they defined the desirable characteristics of students according to the national education policy. These desirable characteristics include love and sharing; A relationship between reality, beauty and fairness and acknowledge anything without domination. Wongyai (1999) studied student happiness using student's responses regarding knowledge seeking and creative characteristics. The office of Education Council has stated that happy students should have basic life skills Physical, mental and emotional wellness and the ability to live with others peacefully. However, the researcher urges that the definition is still unclear and that this recommendation is difficult to implement in reality.

Additionally, student happiness has also been explored through the theory of happy learning which was Boonsue *et al*. (1997) developed. Happy learning theoretically relates to student's perceptions and emotions which affect their satisfaction and motivation during classroom participation. The theory has been used widely in Thailand, for instance, there has been a study of the factors related to happy learning and a study of the correlations between happy learning and learning achievement. Those studies defined happy learning as a student perception that affected satisfaction toward learning. Satisfaction can be defined in several ways such as in relation to learning contents, friends, instructors and schools. The definition of happy learning has also focused on the positive responses that are generated by the student during the learning experience (Itsara, 2007; Kaew-In, 2005; Reungthip, 2007).

Because, this study focuses on the definitions and components of student wellbeing, the literature regarding each dimension of wellbeing is reviewed as follows: Physical wellbeing focuses on aspects such as the presence of good health conditions, the absence of illness, appropriate healthy behaviors and the availability of preventative health care (Camfield *et al*., 2009; Masters, 2004; Pollard and Davidson, 2001; Pollard and Lee, 2003). This dimension of wellbeing is associated with a view of physical health that is very important in the evaluation of student wellbeing.

Mental wellbeing focuses on positive mental conditions which are reflected through psychological circumstances such as conflicts and antisocial personality disorder. Aspects of mental conditions that support positive mental wellness include self-esteem and self-regulation. These aspects provide positive outcomes to individuals. Another aspect of mental wellbeing is resilience which has been defined as the capability to

Table 1: Components and sub-components of student wellbeing

Components	Definition	Indicators
Physical wellbeing	Healthy conditions, appropriate healthy behavior and access to preventive health care	Healthy conditions, the absence of illness and access to preventive health care
Mental and emotional wellbeing	Positive mental conditions,emotional development, emotional regulation	Self-esteem, self-regulation, resilience, self-efficacy, optimism, coping skills, self-development, satisfaction and the absence of psychological disorders
Social wellbeing	Socially relations and desirable social behaviors	Freedom in decision-making, empathy, trust and peer relationships
Cognitive wellbeing	Perception, recognition, decision-making and reasonableness	Thinking, intelligence, mastery, curiosity and motivation
Spiritual wellbeing	Purpose in life and values	Purpose in life and values
Economic or material wellbeing	Material conditions that provide positive effects	Sufficient food, adequate shelter and having other basic needs met

self-adjust and recover from any problems through problem-solving. Several researchers have also suggested that the mental dimension includes intrapersonal manners such as autonomy, purpose in life, self-acceptance, self-efficacy and optimism (Pollard and Davidson, 2001; Pollard and Lee, 2003; Ryff and Keyes, 1995).

Emotional wellbeing focuses on emotional development and emotional regulation and it includes coping, autonomy and self-development (Marshall, 2005; Pollard and Davidson, 2001).

Social wellbeing focuses on positive interactions between children and others. Minkkinen (2013) suggested that positive social condition are caused by social relations and social supports and the United Nations provided a broader definition of social supports: the supporting of social relations that allow children to make their own decisions within appropriate limits. In addition, several researchers have defined social aspects as including empathy, trust, peer relationships, family relationships and appropriate social behaviors (Bornstein *et al*, 2003; Anonymous, 2005, 2010; Pollard and Lee, 2003; Ryff and Keyes, 1995).

Cognitive wellbeing refers to the functions associated with reception, recognition, decision-making and information processing to support individual's interactions with their environments. The cognitive dimension is considered to involve high-level mental processes that aid in problem-solving and rational decision-making. Therefore, the cognitive dimension functions based on aspects such as memory, thinking, intelligence, mastery, curiosity and motivation (Marshall, 2005; Pollard and Davidson, 2001)

Spiritual wellbeing has been defined as a sense of meaning and purpose in life (Fisher, 1999; Marshall, 2005; Pollard and Davisson, 2001; Soutter, 2011). Fisher (1999) suggested that spiritual wellbeing is a significant tool that is linked with other dimensions of wellbeing. An individual's spiritual wellbeing is derived from aspects such as meaning, purpose and value. A community's spiritual wellbeing is derived from aspects such as morality, culture and religion. Economic wellbeing is also known as material wellbeing and it refers to conditions that positively affect children in terms of material supports including sufficient nutrition, adequate accommodation and having other basic needs met. Economic wellbeing also includes parental occupation, parental education and benefit or support status (Hauser, 1994; Pollard and Lee, 2003). The economic dimension can be measured in terms of deprivation such as access to drinking water, food and sanitation. Therefore, economic wellbeing and physical wellbeing are similarly classified.

Based on the literature, the components of wellbeing are briefly defined and used to construct a framework of the study. This study uses 6 wellbeing dimensions (physical, mental and emotional, social, cognitive, spiritual and economic). The mental and emotional dimensions are combined because aspects of those dimensions are similar for instance, problem-solving and autonomy (Minkkinen, 2013). In addition, the indicator of purpose in life has been moved from mental wellbeing to spiritual wellbeing (Table 1).

Population and sample: A quantitative methodological approach was used to collect the primary data. The student wellbeing survey's guidelines were constructed in association with qualitative findings. The study's sample comprised 450 junior secondary students from schools located in Mukdahan, Khon Kaen and Surin Provinces in Northeastern Thailand. A multistage random sampling was applied.

In the first stage, the provinces in Northeastern region were divided into 3 groups: the upper Northeastern, central Northeastern and lower Northeastern regions. Then, a random technique was used to find a representative province for each group: Mukdahan, Khon Kaen and Surin, respectively.

In the second stage, 2 districts in each of the selected provinces were selected at random. The selected districts were divided into 2 groups: remote districts and city-adjacent districts.

The third stage was conducted to select schools. The schools were categorized into 3 groups based on school size (large, medium and small). One school was selected in each group.

This study's research instrument was a student wellbeing survey which was developed from literature reviews and qualitative findings. These qualitative findings were collected from group interviews and in-depth interviews. The group interview method was implemented with students and community leaders and the in-depth interview method was implemented with teachers, school directors and parents. A content analysis was used to construct research findings. In the study, 10 dimensions of student wellbeing were explored: family, physical health, mental health, student characteristics, peer relationships, teacher characteristics, learning atmosphere, school environments, safety and security and community. In all, 51 indicators were explored.

The reliability and validity of the implemented measurement instruments were verified. First, academic experts reviewed the research instruments to verify their reliability and validity. These instruments were then tested on 30 students who were not associated with the study sample but who had similar characteristics. This testing was conducted at a school in Yasothon Province. The reliability value (Cronbach's alpha) was 0.94 which is appropriate and acceptable.

Exploratory factor analysis was implemented to analyze the components of wellbeing and the group indicators were constructed from the qualitative findings. Preliminary analysis was conducted using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity to ensure that the findings were suitable for EFA. The results were, first, that the KMO was 0.944 which indicated that the sampling method was adequate (as the KMO was <0.5). Second, the result of Bartlett's test was 0.000 which indicated that the data were suitable for analysis. Principal component analysis and the varimax rotation method were used.

RESULTS AND DISCUSSION

In this study, the sample consists of 450 junior-secondary-school students. Among those students, 52.2% were male and 47.8% were female. The participant's average age was 14. Regarding the test score ranges, 59.8% of the students had scores from 3.01-4.00 but only 6% had scores from 1.00-2.00.

For the sample characteristics regarding familial information, the average number of family members in the sample was 5. The maximum number of family members was 13 and the minimum number was 2. In terms of living situations, 60.9% of the participants lived with their parents and 27.5% lived with cousins because their parents were working in other regions or had passed away; another 11.6% of the participants lived with a single father or single mother because the other parent worked in another region or because their parents were divorced. Regarding parental education, 45.5% of the participant's fathers graduated from primary school and 54.5% of those graduated from a level above primary school. Similarly, 44.4% of participant's mothers graduated from primary school and 55.6% of those graduated from a level above primary school. For the students who lived with cousins, 71.4% those cousins had graduated from primary school. Regarding parental occupation, 40.9% of participant's fathers and 43.8% of their mothers worked in agriculture.

Components of student wellbeing: The analysis which was conducted using principal component analysis and the varimax rotation method, revealed 10 components of student wellbeing (eigenvalue>1). The sub-indicators of each component were analyzed based on factor loadings (>0.30) (Mnn *et al*., 1969). The results of the analysis showed a single variable that was present in multiple components, with factor loadings close to each other. The variable was named "capability of problem-solving". This variable presents a factor loading in component 1 of 0.348 and in component 3 of 0.332. As the variance is >0.20, this variable was excluded from those 2 components. In addition, component 9 ("Family debt avoidance and convenient tools") and component 10 ("Community membership") each had fewer than 3 variables, so these 2 components were excluded from the analysis as well. In total, 8 components of student wellbeing were analyzed.

Component 1; teachers and teaching methods: Component 1 has 9 variables with a range of factor loadings between 0.506 and 0.715; the variance of the component is 5.446 (10.679% of the total variance). Most of the variables are associated with teacher characteristics and teaching methods. Therefore, the name of component 1 is "Teachers and teaching methods" (Table 2).

Component 2; Physical environment: Component 2 has 9 variables with a range of factor loadings between 0.443 and 0.736 and the variance of this component is 5.204 (20.882% of the total variance). Most of its variables are associated with the physical environment in the student's school and residence. Therefore, the name of component 2 is "Physical environment" (Table 3).

Component 3: Health conditions: Component 3 has 7 variables with a range of factor loadings between 0.385

Table 2: Variables and factor loadings of component 1

Variables	Factor loading
The teacher listens to the student's opinions	0.715
The teacher provides attention to the student	0.689
The teacher gives effective advice to the student	0.685
The teaching methods and tools are interesting	0.644
Outside-of-classroom activities are provided	0.638
The teacher provides assistance if the student has poor skills in learning	0.605
The teacher makes suggestions to the student regarding life skills	0.565
The teacher provides attention to the student with fairness	0.538
The teacher speaks politely and always encourages the student to do good	0.506

Variance of the component (eigenvalue) = 5.446; Percentage of variance = 10.679%

Table 3: Variables and factor loadings of component 2

Variables	Factor loading
The school has a sufficient playground and exercise area	0.736
The school has sufficient food and clean drinking water	0.688
The school has sufficient teaching tools	0.682
The school is clean and well-shaded	0.681
The school provides access to a library, computers and the internet for the student	0.606
The school frequently organizes activities for the community	0.553
The school is close to the student's residence and allows for easy travel	0.523
The school is located in a nonhazardous area	0.493
The student's residence is secure and safe	0.443

Variance of the component (eigenvalue) = 5.204; Percentage of variance = 20.882%

and 0.735 and the variance of this component is 3.693 (28.124% of the total variance). Most of its variables are associated with mental and physical wellness. Therefore, the name of component 3 is "Health conditions" (Table 4).

Component 4; Family and family supports: Component 4 has 5 variables with a range of factor loadings between 0.393 and 0.715 and the variance of this component is 3.408 (34.807% of the total variance). Most of its variables are associated with relationships among family members and with mental and material supports from the family. Therefore, the name of component 4 is "Family and family supports" (Table 5).

Component 5; Security of life and property: Component 5 has 3 variables with a range of factor loadings between 0.750 and 0.797 and the variance of this component is 3.192 (41.066% of the total variance). Most of its variables are associated with safety such as the risk of accidents and robberies. Therefore, the name of component 5 is "Security of life and property" (Table 6).

Component 6; Relationships and community supports: Component 6 has 4 variables with a range of factor loadings between 0.589 and 0.679 and the variance of this component is 2.913 (46.777% of the total variance). Most

Table 4: Variables and factor loadings of component 3

Variables	Factor loading
The student exercises often	0.735
The student has access to nutritious foods	0.697
The student is capable of stress management	0.582
The student does not smoke, drink alcoholic beverages, or use drugs	0.565
The student is healthy	0.550
The student is joyful and has no stress	0.499
The student listens to the majority	0.385

Variance of the component (eigenvalue) = 3.693; Percentage of variance = 28.124%

Table 5: Variables and factor loadings of component 4

Variables	Factor loading
The family members give good advice to the student	0.715
The student participates in family activities often	0.701
The family members live together	0.673
There is no violence in the family	0.610
The family has sufficient income to support the family members	0.393

Variance of the component (eigenvalue) = 3.408; Percentage of variance = 34.807%

Table 6: Variables and factor loadings of component 5

Variables	Factor loading
There are no robberies at the school	0.797
There are no robberies in the community	0.762
There are no dangerous places in the school	0.750

Variance of the component (eigenvalue) = 3.192; Percentage of variance = 41.066%

Table 7: Variables and factor loadings of component 6

Variables	Factor loading
The community has learning resources	0.679
The community supports the school's learning approach	0.659
The community is united	0.596
The student participates in community activities	0.589

Variance of the component (eigenvalue) = 2.913; Percentage of variance = 46.777%

of its variables are associated with relationships among the community and with learning supports from the community. Therefore, the name of component 6 is "Relationships and community supports" (Table 7).

Component 7; Trustworthiness and curiosity in learning: Component 7 has 6 variables with a range of factor loadings between 0.418 and 0.649 and the variance of this component is 2.830 (52.326% of the total variance). Most of its variables are associated with learning satisfaction, motivation, freedom of decision-making and self-pride. Therefore, the name of component 7 is "Trustworthiness and curiosity in learning" (Table 8).

Component 8; Mental supports: Component 8 has 4 variables with a range of factor loadings between 0.418 and 0.649 and the variance of this component is 2.268 (56.772% of the total variance). Most of its variables are associated with mental supports from friends and family members or with acceptance of individual characteristics.

Table 8: Variables and factor loadings of component 7

Variables	Factor loading
The student is happy when attending school	0.649
The student waits to attend school	0.635
The student often seeks new knowledge and experiences	0.609
The student has a purpose and a clear life plan	0.477
The student is capable of making decisions in activities that he or she is interested in	0.461
The student is proud of himself or herself	0.418
Variance of the component (eigenvalue) = 2.830; Percentage of variance =52.326%	

Table 9: Variables and factor loadings of component 8

Variables	Factor loading
The student has friends who can provide good advice	0.619
The parents do not force the student to make certain choices regarding the future	0.593
The student experiences acceptance from friends	0.576
The student has no negative feelings toward those who have illness, disability or poor economic conditions	0.484
Variance of the component (eigenvalue) = 2.268; Percentage of variance =56.772%	

Therefore, the name of component 8 is "Mental supports" (Table 9). The components of student wellbeing in this study are teachers and teaching methods, physical environment, health conditions, family and family supports, security of life and property, relationships and community supports, trustworthiness and curiosity in learning and mental supports.

In the factor analysis, the wellbeing of the participants is compared for the 8 components and 47 variables to create the student wellbeing component which was based on the literature review (Table 1). The result is that the student wellbeing components of this study differ from the international wellbeing components (Table 1). Only the component of health condition (Table 4) conforms to the international standard. Analysis of the findings confirms the theory that wellbeing could differ depending on the sociocultural context (Ryff and Singer, 1999).

This study introduces new components of student wellbeing: teachers and teaching methods, physical environment, family and family supports, security of life and property, relationships and community supports, trustworthiness and curiosity in learning and mental supports.

Regarding the exploratory factor analysis method, 2 of the wellbeing components were excluded from the analysis. Those components are component 9 ("Family debt avoidance and convenient tools") and component 10 ("Community membership"). In addition, the variable entitled "capability of problem solving" was also excluded from the analysis. In this study, component 9 is considered a condition of the family's economic and material supports. This finding is different from those of Hauser (1994) and Pollard and Lee (2003) who mentioned that economic and material wellbeing would provide positive living conditions for children. In addition, this type of wellbeing was evaluated in this study via. other livelihood standards such as parental education and parental occupation which influence how parents are able to support their children's wellbeing.

This study also suggests that the evaluation of learning achievement should not only focus on academic achievement which is insufficient for evaluation. The evaluation should include factors related to the student's happiness (Prompakping, 2006, 2013; Soutter *et al*., 2010), learning atmosphere in-school and out-of-school environments, social relations, characteristics and health conditions (Boyden *et al*., 1998; Knowles and Lander, 2011; Kuno and Rimpela , 2002). Moreover, this study confirms that this wellbeing concept can describe student wellbeing in the Northeastern region of Thailand. The study also confirms that in-school and out-of-school environments should be considered to best understand the circumstance of student wellbeing.

CONCLUSION

This study's objective is to explore the components of student wellbeing based on various opinions from students and other school stakeholders. This is the emic approach which is different from that of other studies which focused assessing wellbeing based on theories and policies which have limited reliability as indicators. This study's findings will be developed to construct future guidelines for student wellbeing assessments.

SUGGESTION

The research findings suggest the following guidelines for student wellbeing supports: In-school environmental management can be defined as the management of the environment in the classroom (including, for instance, teacher characteristics). Teachers should support students and pay attention to them with fairness. Teachers should give good advice to students and be willing to listen to any feedback from those students. The teaching methods should be interesting and they should focus on out-of-school activities and life skills. In addition, teachers should encourage students who have good learning behaviors.

Regarding the environment outside the classroom, the school should provide basic services to students including sufficient food and drinking water, clean and shaded rest areas and sufficient learning materials, including access to computers and the internet.

Out-of-school environmental management should mostly focus on family and community. The family should provide emotional support to all family members and should support them physically and mentally. The community should provide the school with learning resources and teaching materials. In addition, relationship between the community and the school should be organized smoothly to support the student's learning and happiness. The community and the school should have cooperative activities and should allow students to participate in those activities.

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