

Featured Research

Development of social intelligence test for high school student

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Abstract: Measurement of social intelligence on high school students are not available. The study aims to generate an instrument to measure social intelligence of high school students comprehensively. Product development of instruments and manual social intelligence for high school students who revised based on judge of two experts in instrumentation and social intelligence, readability test of the 100 high school students, reliability testing and validity testing to the 956 high school students. Expert judges by using the inter-rater agreement models show a high index between variables and sub-variables until descriptors and the items. Reliability test result by using Alpha coefficient of internal consistency obtained for 0.899. The construct validity of non-verbal test shows that there are six factors and verbal test shows that there are four factors. The validation process of exploratory factor analysis showed loading factor ranges between 0.566-0.996. The norms of social intelligence tests classify into six levels.

Keywords: Testing Development; Social Intelligence

Recommended Cite: Arjanto, P. (2017). Development of social intelligence test for high school student. *Schoulid: Indonesian Journal of School Counseling*, 2(1): pp. 33-40. DOI: 10.23916/008621913-00-0.

Article History: Received on 02/14/2017; Revised on 03/02/2017; Accepted on 04/01/2017; Published Online: 04/30/2017.



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INTRODUCTION

The appraisal service conducted by counselors to students aims to determine the conditions and needs of students. The counselor can develop guidance and counseling programs on right target and good acceptability. In this study, the measurement of social intelligence as a first step for the counselor to determine the types of services or assistance to be provided for students in particular aspects of social development. Data

obtained through social intelligence measurement instruments tested for feasibility through validity and reliability, so that measures social intelligence becomes more accurate.

Sternberg (2011) defines intelligence as "mental activity directed to the purpose of adaptation, selection and formation of the real world and the environment that are relevant to the individual's life. Buzan (2002: 4) states that social intelligence is the ability of individuals to "hang out"

and connect with other people in the vicinity. Individuals who have good social intelligence can use their body and brain to communicate and "read" other people.

Vernon (1933, in Kihlstrom & Cantor, 2011) makes a broader definition of social intelligence. Social intelligence is "the ability to get along with others, in the form of social engineering techniques to calm the public; as well as knowledge of various social terms, sensitivity towards others stimulus, such as a deep understanding of the mood and underlying personality traits of others". Bad of Social adjustment can make teenager have unwelcome developmental outcomes, such as anti-social behavior, was expelled from school (dropping out of school), and psychopathology behavior (Petrides, 2011: 349). Wechsler (1935, 1958) states that the picture arrangement) and the comprehension subtest of the WAIS-R, can measure an individual's social intelligence.

Goal of social intelligence test development is to produce a test instrument that can measure the students' social intelligence in a comprehensive manner. The results of the measurement of social intelligence will help high school students to understand themselves (self-understanding), especially on the social aspects so as to help high school students to do social adjustment. The counselor can also develop programs of guidance and counseling on right target. Thus, the counselor can take accountability of Counseling services implementation to related parties, for example: principals, teachers, parents and students.

Currently, no instruments that can be used by counselors as a measurement tool of social intelligence for high school students. In particular formulation of the

research problem as follows: (1) how to construct a social intelligence tests for high school students?; (2) is valid and reliable the social construct of intelligence tests for high school students?, and (3) how norm or a raw score that can be used as a guide to determine social intelligence for high school students?

The general objective of this research is to develop an instrument that can be used to measure social intelligence high school students. The specific objectives of this study are: (1) developing social construct of intelligence tests for high school students, and (2) test the validity and reliability of social intelligence test for high school students.

Sets norms or raw score that can be used as a guide to determine social intelligence high school students.

METHOD

Development of social intelligence tests based on Gregory's model (2011: 131), which consists of six stages: (1) defines the test, (2) determining the method of measurement, (3) constructing item, (4) analyze items, (5) revised test, and (6) make the test. Researchers added one stage, namely standardization and preparation of test's norm between revision and publication stage.

Reliability tests performed by determining the internal consistency used Cronbach Alpha. Selection this technique because the items of social intelligence test contained a characteristic that dichotomy, or in other words, there are right and wrong answers (Cohen, 2009: 160). To avoid the "expert bias", then factor analysis (construct validity) based on field data (evidence based).

There are two approaches in the analysis of factors such as: (1) exploratory approach (exploratory factor analysis), and (2) confirmatory approach (confirmatory factor analysis). In the research development of social intelligence tests are used exploratory factor analysis. According to Kline (2000, in Drummond and Jones, 2010: 114) exploratory factor analysis is often used in constructing the test.

Furthermore, according to Stapleton (1997, in Drummond and Jones, 2010: 114), exploratory factor analysis can help researchers to determine the construct validity of the test scores so that it can answer the question posed by the construct validity: Is scores on a test measuring what should be measured? Goleman (2006: 330) states that it has developed a model of social intelligence is suggestive and not definitive. Therefore, exploratory factor analysis was used in the early stages of development social intelligence test to identify whether the constructs formed in accordance with the model of social intelligence and to determine the number and load factor of each test items.

Sampling was conducted using multi-stage random sampling with the following steps: (1) create a category based on the division of the area (cluster) of the population covering demographic region (sub-district, school and gender of students). Furthermore, (2) making strata (stratifying), a population-based series of variables (age and grade level). Then (3) respondents were selected randomly from each cluster and strata, in proportion to the total number of people in the population.

RESULTS AND DISCUSSION

Content Validity: Assessment Expert (Expert Judge)

Development is outlining the variable social intelligence into 8 sub-variables in the model of social intelligence Goleman (2006: 84), and 8 sub-variables are described into 20 indicators, 20 indicators are described into 56 sub-indicators, 56 sub-indicators are described into 84 descriptors and 84 descriptor are described to 160 questions/items.

Expert assessment process involves two experts in instrumentation/test and social intelligence to assess the construct of social intelligence matrix: 1) concordance between variables with sub-variables: expert judgement index of 1. Thus, no revised or eliminated to sub-variables, so there are 8 sub-variables corresponding to the variable; 2) sub-variable indicators: expert judgement index of 0.7. Thus nothing is eliminated to sub-variables, so there are 20 indicators in accordance with sub-variables; 3) indicators with sub-indicators: expert judgement index of 0.945. Thus nothing is eliminated for the sub-indicators are there, so there are 55 sub-indicators are in line with the indicator; 4) sub-indicators of the descriptors: expert judgement index of 0.928.

Thus nothing is eliminated for existing descriptors, so that there are 84 descriptors in accordance with sub-indicators; 5) descriptor with questions or items: expert judgement index of 0.712. Thus there should be no elimination of the test questions.

Table 1. The Matrix of Social Intelligence Test

Variabel	Sub-Variabel	Indicator
Social Awareness	Primal Empathy	Understanding the emotional cues of others through facial expressions
		Understanding the emotional cues of others through the eyes of
	Atonement	Listening attentively
		Aligning themselves with others
	Empathic Accuracy	Properly understand the others feelings
		Understand precisely the thoughts of others
	Social Cognition	Knowing the expectations of their social situation
Interpret social cues.		
Social Facilities	Synchrony	Finding solutions to social dilemmas
		Interact appropriately with facial expressions appropriate to the circumstances of others
		Interact appropriately by showing the physiological (body movement) to suit other people
	Self-Presentation	Taking proper distance when interacting with others
		Control themselves in social interactions
		Give a positive impression to others
	Influence	Being able to express yourself to others
		Affect the feeling of others
		Affect the thinking of others
	Concern	Affect the action of others
		Concerned about the needs of others
		Following up the fulfillment of the needs of others

Readability Test (*Face Validity*)

Readability of social intelligence tests showed that 95% of students understand the test instructions, which is used for short sentences, clear, easy to understand, the language easily understood, simple, clear instructions, complete and effective. In contrast to 5% of students feel less obvious to the user test, because the word used is less understood and less clear. There are 96% of students stating, easy to understand language used in questions of social intelligence test for the language used raw, plain and simple, easy to understand, straightforward and use everyday language. While 4% of students have difficulty understanding the language used in questions of social

intelligence test inconsistent with the students' understanding. Furthermore, 17% of students expressed do not understand the words that are used in social intelligence test questions because there are confusing words and terms. In contrast 83% of students are able to understand the words that are used in social intelligence test questions, because words are often used in everyday life and can be understood by students. There are 94% of students stating that the sentences in social intelligence test questions have a clear intention on the grounds that use coherent sentences, and simple, easy to understand, clear and concise and sentence appropriate to the content. While 5% of students stated that the sentences in social intelligence test questions have

mean less clear because the sentence is too long and somewhat confusing sentences students. Alternative answers provided can be understood by 92% of high school students with alternative answers easily understandable reasons, can be adapted to the reality self and alternative answers in accordance with the test questions. However, 8% of students still lack understanding with alternative answers provided for alternative answers are difficult to distinguish from one another and the difference between the answers of one another. Based on the above discussion it can be concluded that in general intelligence tests of social value good readability (above 80%). According to Gregory (2011: 113) relating to the student readability test of social acceptability of an instrument. When the students good legibility, it will motivate test participants (students) because they can see that the test is relevant to themselves (Kaplan & Saccuzzo, 2009: 135).

Reliability Test (*Internal Consistency*)

Reliability test results of tests on a small group of the reliability coefficient (*Alpha*) of 0.899. According to Drummond & Jones (2010: 94) coefficient reliabilias social intelligence tests categorized as high reliability, in which the high category stretched between 0.80 to 0.89.

Exploratory Factor Analysis: Non-Verbal Format

Results of KMO and Bartlett's Test is 0.802 with 0.000 significance. Therefore, the figure is already above 0.5 and a significance far below 0.05 ($0.000 < 0.05$). The results of *the anti-image correlassion test* showed that of 66 items constituent factor of social intelligence are 66 items that have *anti-image* correlation values >0.5 ,

which means 66 such items thereto factored into social intelligence factor. *Cumulative* value of *Rotation Sums of Squared Loadings* shows that six factors formed can explain 53.156% of the variability of social intelligence test items and the rest is explained by other factors outside the 6 factors formed. Results *rotated factor matrix* shows that of the 45 items of social intelligence tests that can be reduced to 6 factors contained items has a charge factor (*factor loading*) greater than 0.5 (> 0.5). Items that are not valid will show the value of KMO, MSA and *rotated matrix component* is less than 0.5 (<0.5).

Exploratory Factor Analysis: Verbal Format

Results of KMO and Bartlett's Test is 0.843 with 0.000 significance. Therefore, the figure is already above 0.5 and a significance far below 0.05 ($0.000 < 0.05$). The results of *the anti-image correlassion test* showed that of 45 items constituent factor of social intelligence are 45 items that have *anti-image* correlation values >0.5 , which means 45 such items thereto factored into social intelligence factor. *Cumulative* value of *Rotation Sums of Squared Loadings* shows that four factors formed can explain 60.473% of the variability of social intelligence test items and the rest is explained by other factors beyond the 8 factors formed. Results *rotated factor matrix* shows that of the 45 items of social intelligence tests that can be reduced to 4 factors with 29 items had factor loadings (*factor loading*) greater than 0.5 (> 0.5). Items that are not valid will show the value of KMO, MSA and *rotated matrix component* is less than 0.5 (<0.5).

The test results of construct validity using exploratory factor analysis of the format of verbal and non-verbal shows that there

are some items that fall. Items that fall due to several reasons, among them:

1. Value *anti-image correlation* (*measurement of sampling adequacy / MSA*) items are less than 0.5 (<0.5). According to Hair et al. (2006: 103) MSA sufficient value to be applied in the analysis of factors is greater than 0.5 (> 0.5).
2. The result of using varimax rotation showed factor loading of each item. Items that have a load factor of less than 0.5 (<0.5) showed lower these items represent factors that accompany it.

According to Cohen (2009: 198) *factor loading* of an item shows how much an item representing of the factor. The results of exploratory factor analysis formed eight factors with *eigenvalues* range between 11.329 to 2.090. Items that social intelligence test has a charge factor of between 0.525 to 0.988. Thus, the items contained in social intelligence test already can load 8 factor in social intelligence.

Based on the *cumulative* value of *rotation sums of squared loadings* showed that eight factors formed can explain 87.993% of the variability of social intelligence of high school students and the remaining 12.007% is explained by other factors beyond the 8 factors. Other factors mentioned by Sullivan, Maureen & Hoepfner (1968) could be the ability to understand social relationships and the ability to understand social situations in the series of the sequence of events. Furthermore, according to Marlowe (1986) Other factors may also be of *social interest* and *social efficacy*. *Social interest* is an interest or willingness of individuals to

pay attention to others; and *social efficacy* is the ability of an individual to social behavior, as expected. Further according to Albrecht (2006: 29-30) other factors not contained in the instrument of social intelligence test developed by researchers of which *autenticity* and *clarity*. *Autenticity* is the authenticity of the private individuals who actually interact with others and *clarity* is an individual's ability to convey an idea or ideas are clear, and not complicated, so that others may be moved to accept the ideas presented.

Determination Norma Social Intelligence Test

In essence, social intelligence is different from general intelligence, so it needs to be made naming different at each levels of intelligence on the social aspect. Therefore, classification of social intelligence is modified according to the needs of this test. The modification process performed on the naming and intelligence score. Classification of the original naming of general intelligence: very superior, superior, above average, average, below average, borderline, mentally defective; modified to be: very high, high, above average, average, below average, low and very low.

Tabel 2. Classification of Social Intelligence Test

Score	Classification
48 ≥	I Very high
46-47	II High
42-45	III Above average
30-41	IV Average
22-29	V Below average
14-21	VI Low
≤ 13	VII Very low

Social intelligence tests norms using *percentile point*. The result of the calculation of descriptive statistics showed that the students' social intelligence can be classified as in the table above.

Administrating Time Test

When reviewed from time to administer social intelligence test, based on the experience of researchers in the field show that the time to answer the each question of social intelligence test takes about 30 seconds. Thus, the total time required by the testee to answer all the social intelligence test items are 48 items x 30 seconds = 1.440 seconds/24 minutes. This is because, the student or testee needs to understand the expression/facial expression, eye gaze and social situation described through the images contained in social intelligence test. In line with the opinion of Thorndike (1920) that the test instrument is suitable for measuring social intelligence requires a human response, a response time to adapt, face, voice, posture, appearance and attitude.

Implications of Social Intelligence Test of Implementation Guidance And Counseling Services In High School

Social intelligence test instruments developed can be used by counselors who have been through the certification tests or minimal education have graduated strata 1 (S1 – bachelor degree) in guidance and counseling or psychology. According to the *American Psychological Association* (2000: 12) in the script *Test User Qualifications*, said there are three levels of users test: (1) *level A*, a test that can be administered and interpreted by non backgrounds psychologist / counselor. (2) *level B*, which is a test that can only be administered by people who have

knowledge of the preparation and the test used, statistics, and individual differences. These tests include tests of intelligence and interest tests. (3) *level C*, the tests administered individually as individual intelligence tests, personality tests and projective tests with minimal user requirements educated strata 2 (S2 – master degree) in the field of guidance and counseling/psychology, and experienced at least 1 year supervised. Thus, social intelligence test is a test that is relatively *level B* for the test of social intelligence is a performance test where there are right and wrong answers as well as standardization and norms that have been standard. Therefore, this test requires good understanding about the use of tests and statistics.

Some students know the advantages of their social intelligence among others: (1) students who know the social intelligence will have an understanding of self (*self-understanding*) is better than the other students. (2) students can use social intelligence test results as a reference to develop the potential that exists in itself in terms of social skills where students are prominent. (3) the student can do a realistic assessment against themselves both the strengths and weaknesses of their particular social aspects that can assist them in making social adjustments in the present and future.

There are several advantages counselors determine social intelligence clients / students, among others: (1) the counselor can analyze and interpret the results of the test of social intelligence so as to know the strengths and weaknesses of the social aspects of students. (2) counselors can use the results of the interpretation of social intelligence test to predict the likelihood that will happen to students, especially

matters concerning social aspects in the future. (3) counselors can use social intelligence test results to determine appropriate interventions in order to improve and develop the social aspects of student/client.

CONCLUSIONS

Development test of social intelligence is done through a series of stages that is expert judgment, test the readability of students (face validity), test reliability using internal consistency, test the construct validity using exploratory factor analysis, and preparation of test norms.

ACKNOWLEDGMENTS

Thank you to Dr. Dany M. Handarini, MA and Dr. Blasius Boli Lasan, M.Pd. the time of the study lead author, Head of Education Department of Malang that gives permission to do the research, Dr. Adi Atmoko, M.Si, who helping data processing, as well as Dr. Triyono, M.Pd giving constructive criticism to this study.

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