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Cultural generalization of non-cognitive concepts: Implications for measurement

Elaine M. Rodeck

Barbara S. Plake

Susan L. Davis

Buros Center for Testing
University of Nebraska-Lincoln

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Questions regarding this paper should be directed to: Elaine Rodeck at ERodeck1@unl.edu

Abstract

Education programs are currently considering the use of non-cognitive measures for program planning purposes. This study provides a multi-step methodology for identifying and examining the potential utility of non-cognitive measures for use in educational program planning including considerations for cultural differences. In addition, an example of this methodology applied to graduate business schools is provided. Based on interviews with two schools, a survey was conducted to measure the utility of an instrument designed to assess emotional intelligence (*BarOn EQ-i*) for use in graduate business school programs. The results of the survey are reported along with recommendations for further study including an international cultural review of instrument items.

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Introduction

Currently, some educational programs and graduate admissions officers are considering the use of non-cognitive measures for the assessment of some inter-personal skills that may be related to success in a field of study. Before using such measures for important decisions for candidates, substantial research must be conducted to support the validity of the intended interpretations. Because such programs include students from different cultural backgrounds, consideration must be given to the cultural applicability of any non-cognitive constructs that may be considered. Specifically, as cultural differences exist in the interpretation of non-cognitive concepts due to factors such as cultural norms, an important consideration for using such measures is the cultural appropriateness of these concepts to students from diverse cultural backgrounds.

The purpose of this paper is to present a methodology that may have promise in examining the potential utility of non-cognitive measures to support program-related decisions for an educational program including considerations for cultural differences. The full methodology has several steps that will inform the decisions about whether it is appropriate to continue to consider such variables for use in educational programs. Included in the paper is an application of this methodology in an exploratory study with an international graduate admissions program.

Multi-step Methodology

The methodology begins with a study of the potentially important non-cognitive factors that may be related to program outcomes. Through the use of focus groups and survey instruments, members of the targeted disciplines (e.g., program or admissions officers for the program area) identify salient non-cognitive variables that may be useful in making program-planning decisions for future or current students.

Once these factors are selected, the next step is to identify commercially available instruments that may provide valid and reliable scores for the intended uses including program planning purposes. It is important to consider commercially available instruments for this purpose, as the development of new instrumentation can be inefficient if an already validated instrument could be identified in the commercial market. For this stage in the process, consultants with expertise in psychometrics could use a commercially available public access database (e.g., Test Reviews Online, Buros Institute of Mental Measurements) to examine reviews of the technical quality of potential instruments that purport to provide scores related to the intended constructs/factors. Based on the reviews of these instruments, only those instruments with adequate psychometric quality should be considered in subsequent phases of the process.

The next step in this process would be to negotiate with the test publishers for these identified instruments to be made available to members of the professional education community so that the members can have first hand experience with the instruments and reports. This panel should have adequate representation of the constituencies who would be interested in using the non-cognitive measures for program decision-making purposes. Depending on the number of instruments still under consideration, decisions will need to be made about whether all panel members will gain experience with every instrument or whether some sampling strategy will be used. It is recommended that at least two panel members gain experience with two of the instruments to provide multiple perspectives on the instrument, including experience at the item

level. To facilitate this process, it is necessary to obtain publishers' permission to use the instruments in this fashion. In some cases special access and designations may be needed for instruments, including special qualifications for the administrator or person who may interpret the results. Most publishers are eager to cooperate with an educational agency (e.g., educational program, graduate school) in this type of process since publishers see the potential for broader exposure, enhanced reputation and increased financial benefits of having their instrument selected for large-scale use with educational programs.

A meeting is then held with the assessment review panel to review and discuss these instruments. The assessment review panel will have several types of information about each instrument to discuss at this meeting. First, the psychometric properties of the instruments should be presented and discussed with assistance from a person who has psychometric expertise. This individual can assist in explaining any of the instrument characteristics to the panel. Second, panel members should be able to review all of the test materials including test manuals, full instrumentation, and sample reports. Third, following the review of the instruments, panel members should share their personal opinions based on this review and their experience taking the instrument (if they were selected to do so). Following discussion of each instrument, the panel will make a decision about whether the potential use of the instrument should be investigated further or whether the instrument should be eliminated from consideration.

For instruments recommended for further consideration by the assessment panel, the next step is to develop a survey to send to educational program officers. In some cases, selected educational programs might already be using the instrument for specific purposes within their educational program. The intent of the survey is to learn from these educational program officers how they are using the instrument with their students and what potential uses they see for the results of the instrument. Therefore, it is necessary to find educational programs that are already using the instrument for some purposes with students in their programs. To facilitate this process, communications with the test publisher or sponsoring agency (e.g., agency commissioning study) may be a way to gain access to the names of educational program officers at educational institutions using these instruments. Once these persons are identified, researchers should contact these program officers to solicit their cooperation in responding to a survey about potential uses of the results of the instrument for program planning and student interactions in their program.

To prepare the survey, it is desirable to interview a select number of education program officers who are currently using the instrument to ensure that the survey properly covered the scope of potential uses of the instrument for program purposes. After the interviews are conducted the survey needs to be designed to efficiently and effectively gather the responses from the educational program officers. Decisions need to be made regarding the timing of the administration of the survey to fit into the schedules for the educational program officers. Also, decisions need to be made about the medium for administration (paper-based or electronic, for example).

Upon completion of the surveys and analysis of the data, another decision point occurs. Based on the results of the survey, the sponsoring agency will decide whether further consideration of the instrument for the intended purposes is warranted. If the answer is yes, the next step in the process is to convene an international cultural review panel. The mission of this panel is to examine each question in the instrument and identify any item(s) that might not be appropriate for use with a multi-cultural population. For example, items may need to be excluded because the wording does not have universal, culturally consistent meaning. If any such item is identified, efforts would need to be made with the instrument publisher to address these culture-

specific issues. A publisher may be willing to prepare a revised version of the instrument with these items reworded or removed and prepare agency specific norms and reports. Again, publishers are often eager to cooperate in these efforts due to the high positive outcomes they experience by having their instrument selected for use with educational program officers across a high volume program.

Exploratory Application of the Multi-step Methodology

Process

The Graduate Management Admission Council® (GMAC®) provides support to member graduate business schools in promoting access to graduate business education. One part of this program entails delivering the Graduate Management Admission Test® (GMAT®), which is used by graduate business schools internationally to inform admission decisions for their graduate business programs. However, the scope of work by GMAC® toward improving access to graduate business schools is much broader. Over the years, GMAC® has looked into other factors that may have potential in making program-planning decisions for students in graduate business schools. In the early 2000s GMAC® began an effort to identify such factors with the intention of examining how information about these factors could be useful for graduate business schools in working with students in their programs. Most importantly, GMAC® recognized the need to consider the cultural generalizability of such constructs (and any measure selected to assess these constructs) given the diversity of their constituencies.

Consistent with the outlined methodology above, the effort began with a series of focus groups (Marks, 2002). From these discussions, seven major themes emerged as worthy of further consideration: Leadership, Negotiation, Teamwork, Communication Style, Entrepreneurship, Decision Making, and Learning and Thinking Styles.

For the next stage, GMAC® contracted with the Buros Center for Testing (BCT) to conduct an analysis of commercially available tests that provided relevant information on these identified factors and to examine their psychometric properties and utility for use in large scale administrations of graduate business school candidates or students. Through that process, five instruments were identified that had promise for these uses: *Teamwork-KSA* (Stevens and Campion, 1994), *Interpersonal Style Inventory* (Lorr, 1986), *Entrepreneurial Quotient Questionnaire* (Wonderlic, 2006), *BarOn Emotional Quotient Inventory (BarOn EQ-i; Bar-On, 2003, 2005)*, and *the Myers-Briggs Type Indicator* (1998).

Members of the assessment review panel were identified by GMAC® and the panel was convened for a full day meeting. Prior to the meeting, each member of the panel was provided with the opportunity to take at least two of the five assessments. During the meeting, panel members were asked to review all five assessment specimen sets (assessment items, technical manual, and sample score report). While reviewing these materials, committee members were asked to consider numerous factors including: (1) the areas of graduate management education in which each assessment could be of use, (2) the quality of each assessment, and (3) the appropriateness of the assessment items for all students. Following this review and panel discussions, two instruments were retained for further consideration: the *BarOn EQ-i* and the *Myers-Briggs Type Indicator*. This study examined the potential utility of the *BarOn EQ-i*; further consideration of the *Myers-Briggs Type Indicator* was deferred pending results from the study examining the *BarOn EQ-i*.

The *BarOn EQ-i* is published by Multi-Health Systems, Inc. (MHS) and purports to measure emotional intelligence. Emotional intelligence was popularized by Daniel Goleman's books,

Emotional Intelligence (1995) and *Working with Emotional Intelligence* (1998). The basis for Goleman's work was David Wechsler's idea of "nonintellective aspects of general intelligence". Wechsler's idea dates back as far as 1940 (Wechsler, 1940). Howard Gardner of Harvard University broadened the idea of traditional cognitive intelligence in 1983. Gardner believes that intelligence has multiple dimensions, including cognitive aspects and emotional elements. The combination of these dimensions is brought together in his concept of "multiple intelligence" (Gardner, 1983).

The *BarOn EQ-i* is a self-report instrument comprised of 133 items, and uses a five-point response scale (ranging from "Not True of Me" to "True of Me") (BarOn, 2005, p. 3). The *BarOn EQ-i* is administered online or completed using a paper-based version of the instrument. The instrument takes about 30 to 40 minutes to complete with no time restrictions placed upon the respondent. The reading level in English is at the North American sixth grade level using the Flesch formula (Flesch, 1948). The *BarOn EQ-i* is targeted to individuals 16 years of age and older (BarOn, 2005). The assessment results in the following scores: four validity scale scores, a total Emotional Quotient (EQ) score, five composite scale scores (intrapersonal, interpersonal, adaptability, stress management, general mood), and 15 EQ subscale scores. These subscale scores include: self-regard, emotional self-awareness, assertiveness, independence, self-actualization, empathy, social responsibility, interpersonal relationship, reality testing, flexibility, problem solving, stress tolerance, impulse control, optimism, and happiness (BarOn, 2005). The *BarOn EQ-i* scores are converted into standard scores. Conversion of respondent scores enables comparison of one respondent's score to scores of the normative group and "theoretically" to the rest of the population (BarOn, 2005, p. 4). High *BarOn EQ-i* scores indicate "emotionally intelligent" individuals, whereas lower scores indicate an opportunity to improve emotional intelligence in certain ways (BarOn, 2005, p.4). The *BarOn EQ-i* includes a correction factor designed to adjust for response bias. Several reports are developed after the instrument has been scored for a respondent. A professional who has been trained and certified by the *BarOn EQ-i* test publisher, MHS, typically provides results to a respondent.

The research survey was developed by BCT in collaboration with GMAC[®]. As part of the development effort, BCT interviewed instructors at two different graduate business schools. These users were selected with the assistance from the test publisher and identified as individuals who were knowledgeable users of the *BarOn EQ-i*. The purpose of the interviews was to learn how the instructors were using the instrument in their graduate business school programs. Two versions of the survey were developed: one paper-based and one electronic. The only differences between the paper and electronic surveys were cosmetic; the same information was gathered in the same order on both surveys.

For the paper-based survey, BCT communicated with GMAC[®] to find names of graduate business schools that reported using the *BarOn EQ-i*. In addition, BCT communicated with MHS to identify graduate business schools that were using the *BarOn EQ-i*. Since the intent of the survey was to identify ways that graduate business schools were or could potentially use the *BarOn EQ-i* in their graduate business school programs, a decision was made in cooperation with GMAC[®], to send the paper-based surveys to the graduate school program director at each of the graduate business schools identified. A total of 33 graduate business schools were identified for the administration of the paper-based survey. For each graduate business school identified for the paper-based administration, the graduate school program director was contacted via telephone in advance of sending the survey. In this phone conversation, BCT personnel explained the research study and the purpose of the survey. In some cases, the graduate school

program director declined to participate (six in total), however, in most cases these officers agreed to participate.

The surveys were mailed in late November with a return date of December 7, 2005. The electronic version was administered to provide extended access to the survey by business school program officers. The window for administration of the electronic survey was March 1 to March 21, 2006.

Results

A total of ten faculty members from ten graduate business schools provided responses to the paper-based or electronic survey. Descriptive information provided by the respondents indicated that the *BarOn EQ-i* was being used in programs ranging from a short 2-day orientation to a 33-month program. The graduate business schools represented a broad range of academic disciplines (e.g., Management and Organizational Behavior) and represented a variety of MBA programs (e.g., full-time, part-time, executive MBA). Across the responding schools, the total number of students in the program was reported in a variety of ways, making summarization challenging (e.g., total of 300, 35-40 per session).

Respondents were also asked about the global representation of their students. These programs have students who are mostly from North America (up to 95%) with Asia having the second highest percentage of students in the programs (up to 30%). Most students were between 26 and 35 years old. The majority of the respondents (80%) indicated that the typical student in their program had earned a bachelor's degree prior to entry in their program. An additional 20% indicated that their typical student had earned a master's degree prior to entry into their program.

Survey respondents were asked to indicate how they currently use the *Bar-On EQ-i* or how it might be possibly used within their educational program. This section of the survey was divided into four major sections: Prediction Purposes, Evaluation Purposes, Development Purposes, and Counseling Purposes. Within each section, specific uses were listed and the respondents were asked to identify for each use whether it was a possible potential (current use or possible) or not a valid use.

The results indicated these respondents did not endorse many of the uses that were identified in the survey as ways to provide useful information for their program. For Prediction Purposes, more than half of the respondents endorsed the use of the instrument to predict academic success for admissions. Prediction purposes not endorsed include screening candidates for admission, assigning individuals to teams, and predicting academic concerns. For Evaluation Purposes, most of the respondents indicated they currently used the results to evaluate their students' leadership potential and more than 50% reported using the results for examining student impact of self on others, and evaluating thinking styles of their students. More than 50% of the respondents also indicated they currently use the results for evaluation of their students' communication style in both an academic and career context. Notwithstanding this support for potential uses of the *Bar-On EQ-i*, each of these identified uses had at least one (sometimes several) of the respondents indicate that such a use was not valid.

For Development Purposes, many of the respondents reported using the results of the *Bar-On EQ-i* to develop general EQ competence in their students. High endorsement was also found for using the *BarOn EQ-i* results for Management coursework, to identify career oriented strengths, and potential weaknesses, and for use as a tool for coaching. However, as was found in the other categories of use, often at least one respondent reported that the identified use was not valid. This was particularly true for use in human resources coursework, identifying career paths,

and developing action plans for job search (where 4 of the 10 respondents indicated an invalid use).

For Counseling Purposes respondents were less than enthusiastic about the validity of using the *BarOn EQ-i* for many of the potential uses. Over 50% of the respondents indicated these uses were invalid except for developing self-awareness (where 40% indicated such a use was not valid) and evaluating student interactions with each other (where 40% of the respondents indicated such a use was not valid). Therefore, it appears that many of the respondents questioned the validity of using the results for counseling purposes.

Based on the limited information provided by the survey, GMAC[®] was faced with a difficult decision regarding further continuing their interest in the potential uses of the *BarOn EQ-i* with graduate business schools. The sample was very small and not representative of graduate business schools, leading to the conclusion that no decisions may be warranted based on the information provided. However, albeit very small, this select group of respondents represented users that could have been anticipated to be very positive about uses of the *BarOn EQ-i* in graduate business schools. The fact that they were, on the whole, not very supportive of many of the identified potential uses may indicate that a broader, larger, and more representative sample would likely not be supportive either.

The next step, contingent on GMAC[®]'s decision regarding continued interest in the *BarOn EQ-i*, would be to convene an international cultural review committee to examine the individual items for the use with an international student body. This step has not been conducted to date and it is not clear when, or if, that step will be taken for this instrument.

Conclusion

The purpose of this paper was to present a multi-step methodology that could be used to identify and examine non-cognitive measures for use in educational program planning. These steps include a series of efforts to 1) identify what constructs would be of interest, 2) identify existing commercially available assessments that show promise for providing valid and reliable information about these constructs, 3) examine these instruments for their feasibility and credibility for use, and 4) examine the cultural applicability of the questions that comprise the instrument. Once these steps have been completed, the educational agency will be better positioned to make decisions about the whether it would be advisable to consider these instruments for some collaborative venture with educational programs to conduct a pilot study on the potential viability of these instruments for program planning purposes.

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