

Interpretation in correlating the Money Problem Check List dimensions using Rasch Model

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ABSTRACT

This paper aims to examine the internal consistency and separation index of Mooney Problem Checklist (MPCL) using Rasch Model, investigating the intercorrelation between eleven dimensions in MPCL and discussing about the polytechnic students' performance for each dimension. MPCL was measured using eleven dimensional category covers issues: (i) health, (ii) finance, (iii) recreation, (iv) courtship, (v) social, (vi) personal, (vii) religion, (viii) family, (ix) career, (x) education and (xi) learning. The MPCL was administered quantitatively to 252 respondents selected from seven polytechnics in Malaysia and the convenience sampling technique was employed. Data were analyzed using WINSTEPS 3.71.0.1 based on Rasch measurement model framework. The results showed that the items are fulfilling the requirement internal consistency and separation index Rasch model. Three pairs of dimensions have a strong relationship, while 15 pair has a moderate relationship and 37 pair yet has a poor relationship. The findings showed the three dimensional pair has a strong correlation, which includes education - learning ($r = 0.687$, $p = 0.000$), career - education ($r = 0.685$, $p = 0.000$) and social - personal ($r = 0.662$, $p = 0.000$). Three pairs that have the weakest correlation relationship is recreation - career ($r = 0.332$, $p = 0.000$), finance - religion ($r = 0.309$, $p = 0.000$) and health - career ($r = 0.297$, $p = 0.000$). This study shows the strength of the dimensions in MPCL in proving the suitability of the items used for replication in the context of polytechnics. The research not only contributes to test the psychometric properties of the items in replicating with polytechnic students' context, it is also showing us the students' performance for each dimensions as well.

Keywords: Mooney Problem Checklist; Rasch Model; Challenges; Polytechnic.

1.0 Introduction

The current global competition is becoming increasingly challenging, which rapidly technology advances and challenges in the current issue of demanding vocational technical education in order to train manpower to become more competent, innovative, resilient, competitive and able to adapt diverse sites in industries and occupations (Zuhaila, Mohd Safarin, & Muhammad Syukri, 2012). This requirement is in line with the desire to realize one of the major national education agenda, namely the Polytechnic Transformation to increase the number of highly skilled workers to 37 percent by 2015 (Jabatan Pengajian Politeknik, 2009). The most basic concept is when we want to solve a problem or challenge in the life of students, the challenge should be identified in advance. In measuring the response of the students to the challenges, the selection of the instrument with high reliability and validity is a vital. This research will strengthen the justification for the selection of Mooney Problem Checklist (MPCL) as a precision instrument.

1.1 Problem statement

MPCL was originally developed with the frequency of the respondents to select certain items that they prefer as problems in their life. This research change the scale of measurement of the frequency of the problems 1 and 2 from the original instrument to use three points the Likert scale of Not Interfere at all (0), Not so Interfere (1) and Very Interfere (2). The scaling is more relevant than conventional scoring methods for use Rasch model in this study. One of the psychometric issues is a data rating scale of Likert scale in MPCL, which is an ordinal type of data. However, we cannot assume that increase in rank shows a similar increase between one scale and the other scales (Smith, Conrad, Chang, & Piazza, 2002). Only the interval and ratio type of data can be used for the actual measurement or for parametric tests like correlation. Nonetheless, a rating scale such as the Likert scale for Classical Test Theory (CTT) analysis is often mistaken as an interval data and misused in parametric statistical procedures (Bode & Wright, 1999). Thus, there is a need to transform the ordinal into interval data through the logits by Rasch model other than to obtain a linear interval scale. By this transformation, the correlation can be done correctly to evaluate the strength between MPCL dimensions from the polytechnic context. The research interests are to examine the convergence validity, the ability to measure the separation of the problems and also intercorrelation between eleven dimensions of challenges inspired by Mooney & Gordon (1950).

1.2 Significant of the research

Firstly, it has a lack of empirical evidence to test the items of MPCL using modern psychometric theory of Rasch model especially in the transforming the type of data from ordinal to interval using logits value. This will counter back the misconceptions of the applications and wrong assumptions that Likert scale as an ordinal type of data. Secondly, MPCL was not always used in the polytechnic compared to other institutions. By using Rasch model with reliability and separation index, it will show the suitability of the items used for replication in the context of polytechnics. Thirdly, this research will show the strength of the dimensions in MPCL in order to fulfill the needs of internal consistency. This will help to produce empirical evidence on the

strength and weaknesses of the dimensions specifically. Fourthly, the instrument developer can improve the quality of the items of MPCL by looking back at the items that unable to measure the construct holistically. Examination of the items generally are using Classical Test Theory and this research has contributes more in applying the Rasch model that enable to provide more information and empirical evidence regarding the person and items reliability and separation index. Fifthly, the research helps the institutions on how they can improve the content of the development programme by evaluating the worst part of the dimensions in MPCL. Generally, the research not only contributes to test the psychometric properties of the items in replicating with polytechnic students' context, it is also showing us the students' performance for each dimensions as well.

1.3 Aims of the research

This paper aims (i) to examining the internal consistency and separation index of Mooney Problem Checklist (MPCL) using Rasch model (ii) to investigate the intercorrelation between eleven dimensions of challenges in MPCL and (iii) to discuss about the polytechnic students' performance for each dimension.

2.0 BACKGROUND OF THE RESEARCH

2.1 Concepts of challenges

Challenge (adversity) is associated with distress or problems experienced by a person. Challenge means difficulties, hardships, unlucky, challenge, disaster, sources of stress, sadness, misery and distress (Cura & Gozum, 2011). There are two types of challenges and some examples described by Stoltz & Weihenmayer (2010), the internal challenges (inner adversity) such as fear, anxiety, depression, loneliness, lack of confidence, health problems, insomnia, uncertainties and others. However, another type of challenge is external challenges (outer adversity) involve external factors such as economic problems, failure in examinations, computer malfunction, car scratched and natural disasters. Based on the literature review in polytechnic context, examples of internal challenges such as the level of concern over the use of English in the teaching and learning process (GK Mariappen, Kanammah, Rajiv, & Rajesvari, 2012; Sanmugam, Rajanthran, & Nurul Wahida, 2012) and unconfident when speaking in English with correct pronunciation (Fauziah, Siti Fazlina, & Najibah, 2012) while external challenges such as bus service is very limited and unsystematic (Zainap, Normah & Canarisa 2012) as well as the classrooms are quite narrow and uncomfortable (Abd. Rahman *et al.* 2011). Diversity challenges that exist to meet the concept of the challenges presented. However, this challenge is expected to have a negative impact and should be given attention (Stoltz & Weihenmayer, 2010). The most basic concept is when we want to solve a problem or challenge in the life of students, the challenge should be identified in advance. Accordingly, this study was undertaken to identify the challenges of students and seeks to examine the strengths and weaknesses that can be highlighted that can be empowered. Good handling requires strong self-control. Instability of self-control in the face of challenges will lead to a negative self-concept as always blaming others, speak words that offend anybody and always dissatisfied (Shahabuddin, Mahani, & Ramlah, 2007). In fact, sometimes becoming more extreme as suicide

when some of these people have given up and decided to end their lives to escape from the problems faced (Azizi, Cathy Suhaila, Roslee, & Sharifuddin, 2006). This is caused by individuals who are often associated with a failure in any field cannot escape from having a negative self-concept (Azizi, Fawziah, Zurihanmi, & Noordin, 2005). Thus, the formation of a positive self-image is very important because people are different in their response to stress (Ma'rof & Haslinda, 2008).

2.2 Rasch Measurement Model

Rasch model has been widely used in various fields, especially in education and psychology of education assessment to measure the level of achievement and cognitive assessment (Azrilah Abdul Aziz, Mohd Saidfudin Masodi, & Azami Zaharim, 2013). This model arranged individuals based on abilities and the items were sorted by difficulty (Bond & Fox, 2007). This model also helped in constructing a scale based on a set of items studied and focused on items and individuals as compared to the test scores (Azrilah Abdul Aziz, 2011). Like any test theories, Rasch Model helps explain response on observable traits to estimate unobservable traits of a particular construct. Rasch model involves modeling involves two important parameters in testing, that are, (1) item difficulty (observable trait), and (2) respondents' ability (unobservable trait). The modeling is represented in the following Equation (1).

$$P_i = \frac{\exp(\beta_n - \delta_i)}{1 + \exp(\beta_n - \delta_i)} \quad (1)$$

Where,

P_i = probability of getting a correct answer for Item i

β_n = ability parameter for respondent n

δ_i = difficulty parameter of an item i

Item difficulty parameter is defined as the proportion of the number of students who answer incorrectly. In Likert scale analysis, item difficulty parameter is operationalized as proportion of respondents who agree with an item. Item difficulty parameter is defined as the proportion of the number of students who answer incorrectly. In Likert scale analysis, item difficulty parameter is operationalized as proportion of respondents who agree with an item. An Item 1 which is scored "Agree" by most respondents is considered as easy item, compared to Item 2 which is scored equally "Agree" and "Disagree" among items. As such, Item 2 will has higher item difficulty parameter compared to Item 1. Meanwhile, respondent's ability parameter is calculated based on the ratio of the number of correct items. For Likert scale items, the parameter is defined as ability to "Agree" with the item. As such, respondent who tends to "Agree" on most items is considered of having less ability compared to respondent with various options. Modeling of both parameters is conducted through a procedure called calibration, where responses for each item is transform into equal interval score call '*measure*' using natural log (\ln). The measure for both parameters is defined in *logits* unit. Equal interval measure is a fundamental requirement for measurement since it provides ruler-like measurement of unobserved construct; therefore the different between measures can be

identified, that in turns, provides precision of interpretations of the measurement made. In addition, since the parameters are in equal-interval unit, they can be put into a common scale. In this context of research, Rasch model offers two sets of reliability coefficient, i.e. each coefficient for every parameter. The item difficulty reliability coefficient provides information on the consistency of item difficulty measure if the study is conducted with different but comparable sample of respondents. Respondent ability reliability coefficient, which is similar to Cronbach's (α), provide information on the possibility of consistent ability measure if the study is conducted using different set of items. High values of both coefficients are the intended results for validation studies. Apart from the reliability index, one of the important aspects is separation index. Rasch model provides information of two types of separation index; person separation (to estimate the ability of the instrument to separate participants into different levels of the construct), and item separation (to estimate the ability of the participants to distinguish between items measuring different levels of the construct) (Wright & Masters, 2002).

3.0 METHODOLOGY

3.1 Approach and administration

The study was conducted using quantitative survey approach. The researchers have applied for permission to run a study from the Centre for Research and Innovation and the Director for each polytechnic. Researchers also obtain permission from the Student Affairs Officer in obtaining the student population data for sampling calculation. The test was administered for one hour via monitoring from the lecturer of the polytechnic. All students' successfully completed the instrument. The distribution of the instruments and the briefing was given by face to face with the students. Students are given time for about an hour to answer all items completely. The collection of instruments made by the researcher after the test. For the reason that motivation or encouragement is also an important part for the individual to response to the items (Siti Rahayah Ariffin, Shafiza Mohamed, Anita Isa, Sharida Hanim, & Abdul Ghafur Ahmad, 2010). Letters of appreciation were given to lecturers and gifts for students as a sign of obligation. The data was inserted using SPSS version 19.0 and WINSTEPS version 3.71.0.1 for getting Rasch model findings.

3.2 Sampling

The demographic distribution of the respondents indicated 252 students in seven polytechnics, namely Politeknik Seberang Perai (PSP), Pulau Pinang, Politeknik Kota Bharu (PKB), Kelantan, Politeknik Kota Kinabalu (PKK), Sabah, Politeknik Nilai (PNS), Negeri Sembilan, Politeknik Sultan Idris Shah (PSIS), Selangor, Politeknik Premier Ibrahim Sultan (PIS), Johor and Politeknik Metro Kuala Lumpur, (PMKL), Kuala Lumpur. The respondents came across eight various departments and year of study. Justification for the selection of the polytechnic is based on zones (north, west, east, south, and Borneo). Convenience sampling was selected because it is easy due to the need to select a sample that want to give a good cooperation, easily accessible, voluntary (Cohen, Manion, & Morrison 2007), and appropriate to provide a rough idea of the phenomena

that exist in a population studies and guide researchers through deeper study (Creswell, 2012). Table 1 shows the characteristics of the respondents.

Table 1: Characteristics of the respondents

| Demography factor | Frequency | Percentage |
|------------------------------------------------------------|-----------|------------|
| <i>Gender</i> | | |
| Male | 126 | 50.0% |
| Female | 126 | 50.0% |
| <i>Name of polytechnic</i> | | |
| Polytechnic of Kota Kinabalu | 50 | 19.8% |
| Premier Polytechnic of Ibrahim Sultan | 40 | 15.9% |
| Polytechnic of Seberang Perai | 40 | 15.9% |
| Polytechnic of Kota Bharu | 40 | 15.9% |
| Polytechnic of Sultan Idris Shah | 40 | 15.9% |
| Metro Polytechnic of Kuala Lumpur | 24 | 9.5% |
| Polytechnic of Nilai | 18 | 7.1% |
| <i>Semester of study</i> | | |
| First semester | 56 | 22.2% |
| Second semester | 56 | 22.2% |
| Third semester | 52 | 20.6% |
| Fifth semester | 44 | 17.5% |
| Sixth semester | 44 | 17.5% |
| <i>Department</i> | | |
| Commerce Department (JP) | 62 | 24.6% |
| Electrical Engineering Department (JKE) | 50 | 19.8% |
| Mechanical Engineering Department (JKM) | 44 | 17.5% |
| Hospitality Department (JH) | 32 | 12.7% |
| Civil Engineering Department (JKA) | 30 | 11.9% |
| Information Technology and Communication Department (JTMK) | 20 | 7.9% |
| Visual and Computer Design Department (JRKV) | 10 | 4.0% |
| BioIndustry and Agrotechnology Department (JAB) | 4 | 1.6% |
| | 252 | 100% |

3.3 Instrumentation

This study uses the MPCL to collect data on the response of polytechnic students. The concept of the challenges in this study refers to the problems faced by polytechnic students based on the dimensions of MPCL by Mooney & Gordon (1950) with eleven-dimensional category covers issues such as (i) health; (ii) finance, (iii) recreation; (iv) courtship; (v) social; (vi) personal; (vii) religion; (viii) family; (ix) career; (x) education and (xi) learning. MPCL is an instrument for student problems checklist which is most widely used and popular in Malaysia because the features are very easy to be administered and interpreted. Moreover, MPCL do not require intimate knowledge to use (Sidek, 2013). This instrument was adapted from a study by Susila

(2005) from the Faculty of Education, University of Malaya. MPCL was chosen because it tells many categories of problems and provide an opportunity for respondents to list their new problems. However, three items from the dimension of friendship has been removed from the original instrument because it is not considered appropriate to the cultural context in Malaysia. Table 2 shows the items number based on dimensions of MPCL.

Table 2: The items number based on dimensions of MPCL

| Bil | Dimensions | Item No. |
|-----|-----------------------------------------------------|-----------|
| 1 | Health (health and physical development) | 01 – 30 |
| 2 | Finance (finance, living conditions and employment) | 31 – 60 |
| 3 | Recreation (social and recreational activities) | 61 – 90 |
| 4 | Courtship (courtship, sex and marriage) | 91 – 117 |
| 5 | Social (social – psychological relations) | 118 – 147 |
| 6 | Personal (personal – psychological relations) | 148 – 177 |
| 7 | Religion (morals and religion) | 178 – 207 |
| 8 | Family (home and family) | 208 – 237 |
| 9 | Career (future – vocational and educational) | 238 – 267 |
| 10 | Education (adjustment to school work) | 268 – 297 |
| 11 | Learning (curriculum and teaching procedures) | 298 – 327 |

The responses of all items in the constructs are polytomous using Likert scale. The study also change the scale of measurement of the frequency of the problems 1 and 2 from the original instrument to use three points the Likert scale of Not Interfere at all (0), Not so Interfere (1) and Very Interfere (2). The scaling is more relevant than conventional scoring methods for use Rasch model in this study. Conversion to the Likert scale is not a problem because MPCL is not intended to produce scores to make inferences, but it is intended to detect the type of the main problems (Mooney & Gordon 1950). Many previous studies has been using MPCL in their study (Azeem & Nadawiyya, 2012; Susila, 2005; Syed Mohamed Shafeq & Hairiza, 2011).

3.4 Limitations

The limitations of the study are only involved (a) seven polytechnics in Malaysia; (b) the instrument used was MPCL; (c) it has eleven dimensions of challenges in MPCL; and (d) limited to eight various departments.

4.0 RESULTS AND DISCUSSIONS

4.1 Reliability and separation index

The findings showed a good reliability and separation index as well as meet the criteria of the Rasch Model as prescribed. Quality measurements made using the Rasch model can be demonstrated by using two statistics, the reliability index of samples and separation index item. Overall, the person reliability index estimated from measurements made are high, which is 0.99 and the items of reliability index is 0.91. The reliability value exceeding 0.8 is acceptable (Bond & Fox, 2007; Linacre, 2002). The findings are strengthened by value of reliability of the person

and the item which is deemed excellent and the very good by referring the quality of measurement by Fisher (2007) asserted that value of reliability of the items and persons exceeding 0.94 is considered excellent, while 0.91 to 0.94 is considered very good. Person reliability index exceeding 0.8 with the reliability of the items exceeding 0.9 also indicates that the sample is adequate (Linacre, 2012). Overall, the reliability value is at a good level and can be accepted for each dimension of MPCL.

Table 3: The reliability and separation index among MPCL dimensions

| Dimensions of MPCL | Reliability | | Separation Index | |
|--------------------|-------------|------|------------------|------|
| | Person | Item | Person | Item |
| 1. Health | 0.89 | 0.94 | 2.88 | 3.89 |
| 2. Finances | 0.88 | 0.91 | 2.66 | 3.12 |
| 3. Recreation | 0.87 | 0.86 | 2.55 | 2.47 |
| 4. Courtship | 0.85 | 0.90 | 2.39 | 2.99 |
| 5. Social | 0.89 | 0.79 | 2.84 | 1.93 |
| 6. Personal | 0.91 | 0.87 | 3.13 | 2.53 |
| 7. Religion | 0.89 | 0.91 | 2.88 | 3.11 |
| 8. Family | 0.90 | 0.85 | 2.92 | 2.39 |
| 9. Career | 0.90 | 0.91 | 2.94 | 3.26 |
| 10. Education | 0.90 | 0.89 | 3.08 | 2.87 |
| 11. Learning | 0.91 | 0.86 | 3.11 | 2.53 |
| Overall | 0.99 | 0.91 | 8.66 | 3.12 |

For person separation index as a whole recorded the value of 8.66 and the items separation index was at 3.12. Fisher (2007) emphasized the separation index between 2 and 3 considered moderate, 3 to 4 is considered good and exceeding 5 are considered to be excellent. Thus, the overall findings indicate person separation index is excellent and the items separation index is good. A total of nine stratum abilities identified in the sample, whereas the items separation index shows there are three strata of items difficulty item. Psychometrically, a number of 327 items of MPCL can be divided into three different levels, which is easy, medium and hard. This is to comply with the ruling that the value of person and items separation index exceeding 2 is acceptable (Bond & Fox, 2007). According to Linacre (2012), person separation index exceeding 2 and the value of items separation index exceeding 3 are well accepted. Overall, the value of separation index is good and acceptable.

4.2 Intercorrelation between the dimensions

A convergent technique using the same method to study the constructs that should provide which is relatively high inter-correlation (Cohen et al., 2011). Inter-correlations for all pairs of variables and items in MPCL instruments have a positive correlation. Patterns of inter-correlation between the dimensions must show divergent and convergent validity (Stevens & Zvoch, 2007). Table 4 shows the results of the value of positive correlation with the highest correlation is 0.687 (dimensions of education and learning) and the lowest correlation is 0.297

(dimensions of health and career). This shows that all 11 dimensions and 327 items measuring problems and challenges. The results shown in Table 5.

Table 4: The correlation between the dimensions in the instrument of MPCL

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|
| 1 | 1 | | | | | | | | | | |
| 2 | .581** | 1 | | | | | | | | | |
| 3 | .443** | .580** | 1 | | | | | | | | |
| 4 | .497** | .553** | .560** | 1 | | | | | | | |
| 5 | .375** | .358** | .426** | .530** | 1 | | | | | | |
| 6 | .465** | .352** | .375** | .518** | .662** | 1 | | | | | |
| 7 | .439** | .309** | .407** | .421** | .539** | .583** | 1 | | | | |
| 8 | .391** | .372** | .380** | .452** | .463** | .523** | .525** | 1 | | | |
| 9 | .297** | .436** | .332** | .482** | .375** | .439** | .445** | .443** | 1 | | |
| 10 | .390** | .454** | .379** | .572** | .466** | .577** | .546** | .555** | .685** | 1 | |
| 11 | .352** | .427** | .395** | .552** | .481** | .532** | .512** | .529** | .565** | .687** | 1 |

Basically, there is 55 pair of dimensions relationship that existed from 11 dimensions of MPCL. Three relationships have strong strength, 15 more pairs have moderate strength and 37 pairs at a weak level. Strength of correlation is based on Hair, Celsi, Oritinau, & Bush (2013), which is ± 0.81 to ± 1.00 (very strong), ± 0.61 to ± 0.80 (strong), ± 0.60 to ± 0.41 (moderate), 0.21 to ± 0.40 (weak) and ± 0.00 to ± 0.20 (very weak to no relationship).

Table 5: Rank of correlation between dimensions in MPCL

| Rank | Pair of dimensions | Coefficient | Description of strength |
|------|------------------------|-------------|-------------------------|
| 1 | Education – Learning | .687** | Strong |
| 2 | Career – Education | .685** | Strong |
| 3 | Social – Personal | .662** | Strong |
| 4 | Personal – Religion | .583** | Moderate |
| 5 | Health – Finance | .581** | Moderate |
| 6 | Finance – Recreation | .580** | Moderate |
| 7 | Personal – Education | .577** | Moderate |
| 8 | Courtship – Education | .572** | Moderate |
| 9 | Career – Learning | .565** | Moderate |
| 10 | Recreation – Courtship | .560** | Moderate |
| 11 | Family – Education | .555** | Moderate |
| 12 | Finance – Courtship | .553** | Moderate |

| | | | |
|----|-----------------------|--------|----------|
| 13 | Courtship – Learning | .552** | Moderate |
| 14 | Religion – Education | .546** | Moderate |
| 15 | Social – Religion | .539** | Moderate |
| 16 | Personal – Learning | .532** | Moderate |
| 17 | Courtship – Social | .530** | Moderate |
| 18 | Family – Learning | .529** | Moderate |
| 19 | Religion – Family | .525** | Moderate |
| 20 | Personal – Family | .523** | Moderate |
| 21 | Courtship – Personal | .518** | Moderate |
| 22 | Religion – Learning | .512** | Moderate |
| 23 | Health – Courtship | .497** | Moderate |
| 24 | Courtship – Career | .482** | Moderate |
| 25 | Social – Learning | .481** | Moderate |
| 26 | Social – Education | .466** | Moderate |
| 27 | Health – Personal | .465** | Moderate |
| 28 | Social – Family | .463** | Moderate |
| 29 | Finance – Education | .454** | Moderate |
| 30 | Courtship – Family | .452** | Moderate |
| 31 | Religion – Career | .445** | Moderate |
| 32 | Health – Recreation | .443** | Moderate |
| 33 | Family – Career | .443** | Moderate |
| 34 | Personal – Career | .439** | Moderate |
| 35 | Health – Religion | .439** | Moderate |
| 36 | Finance – Career | .436** | Moderate |
| 37 | Finance – Learning | .427** | Moderate |
| 38 | Recreation – Social | .426** | Moderate |
| 39 | Courtship – Religion | .421** | Moderate |
| 40 | Recreation – Religion | .407** | Moderate |
| 41 | Recreation – Learning | .395** | Weak |
| 42 | Health – Family | .391** | Weak |
| 43 | Health – Education | .390** | Weak |
| 44 | Recreation – Family | .380** | Weak |

| | | | | | |
|---------------------|----|------------------------|--------|------|---------|
| | 45 | Recreation – Education | .379** | Weak | |
| Table shows pair of | 46 | Health – Social | .375** | Weak | 5 three |
| | 47 | Recreation – Personal | .375** | Weak | |
| | 48 | Social – Career | .375** | Weak | |
| | 49 | Finance – Family | .372** | Weak | |
| | 50 | Health – Learning | .352** | Weak | |
| | 51 | Finance – Social | .358** | Weak | |
| | 52 | Finance – Personal | .352** | Weak | |
| | 53 | Recreation – Career | .332** | Weak | |
| | 54 | Finance – Religion | .309** | Weak | |
| | 55 | Health – Career | .297** | Weak | |

dimensions that have a strong correlation relationship is education - learning ($r = 0.687$, $p = 0.000$), followed by a career - education ($r = 0.685$, $p = 0.000$) and social - personal ($r = 0.662$, $p = 0.000$). Three pair of dimensions that have the weakest correlation relationship is recreation - career ($r = 0.332$, $p = 0.000$), finance - religion ($r = 0.309$, $p = 0.000$) and health - career ($r = 0.297$, $p = 0.000$). This paper only discusses the strongest correlations, namely education - learning, career – education and social - personal. Dimensions of education - learning ($r = 0.687$, $p = 0.000$) recorded the highest relationship from the perspective of polytechnic students. The main focus of academic challenge in the findings of several previous studies involving students in higher education (Chin, 2007; Hassan & Vaskalista, 2008; Tan, 2004).

In the context of the polytechnic, this finding is supported by research conducted by Mohd Effendi & Ahmad Zamri (2013), which shows the dimensions of teaching and learning is a difficult challenge for students of polytechnics in which the difficulty of an item based on the dimensions of MPCL, shows the dimensions learning recorded the highest average difficulty logits of +0.252 and learning problems ranked third out of eleven dimensions with a value of +0.177. This means that the items in this dimension difficult to be agreed by most of the respondents. This finding is consistent with the findings of the inter-correlation between the dimensions of education - learning in this analysis. Challenges in terms of the dimensions of education are seen dominant such as concerns of the examination Q292 (.88), worried about the test scores Q291 (.66) and did not allocate enough time to learn Q272 (.53). Items that are challenging for learning dimension for examples such as the fear of failure in test Q326 (.94), did not smart enough Q325 (.57), did not able to concentrate on some subjects Q324 (.47) and too much work is required in some subjects Q309 (.46).

The challenges for the dimension of education, which emphasizing aspects of worrying of academic achievement, time and way to learn as well as the academic performance. This challenge has a relationship with learning challenges such as fear of failure, always feel that they are not smart enough, the lack of focus on learning and concerned about getting low marks. Relations between the two dimensions is quite clear on the dimensions of the education

item, which concerns about examinations Q292 (.88) and concerned about the test scores Q291 (.66) as well as learning dimension item such as fear of failure in the test Q326 (.94) and feel that they are not smart enough Q325 (.57). Polytechnic students are seen to be concerned with their academic performance and a poor self-concept, that they always think they are not smart enough and fear of failure in the test. This finding supports the internal challenges can affect individual lives (Stoltz & Weihenmayer 2010). It is consistent with the concept of the challenges noted by Stoltz & Weihenmayer (2010), the internal challenge where the challenge starts from the students itself that are suspicious of the challenge accepted.

This finding is supported by a study conducted by Ferlis, Balan, & Rosnah (2009), which states that the current students on campus, they will be faced with new situations, learn how to be independent and adapt to the new social environment, take care of themselves such as things related to the learning, daily living, communication, finance, and manage their time wisely. This is the root cause of stress among students directly or indirectly. Furthermore, the stress to get good results in exams, assignments given by lecturers, learning facilities and uncomfortable conditions while in the classroom. By reason of these two dimensions dominate the 52 challenges and positively interconnected to each other, then the polytechnics should not ignore the strengthening and consolidation of internal challenge for both dimensions education - learning for polytechnic students.

Challenge of education also has strong relationships with career dimensions. The dimensional relationship between career - education ($r = 0685$, $p = 0.000$) explains the challenges of a career that interfere respondents dimensions such as fear of unemployment after graduating from polytechnics Q260 (.62), doubts about my chosen profession in the future Q241 (.52), afraid if I cannot go directly to the Institute of Higher Education Q256 (.49) and afraid if I am not accepted to further studies at the Institute of Higher Education Q257 (.49) (Mohd Effendi & Ahmad Zamri, 2013). Relations between dimensions career - education supported by the results of a report on the perspectives of employers of the unemployed graduates due to factors such as low academic achievement, poor interview preparation, attitude and spirit of low self-esteem, do not motivated and there is no goal (ACNielsen Research Services, 2000). The relationship between career - education can clearly be seen through the anxiety on academic performance and self-sufficiency for the dimension of education with career-dimensional such as they are afraid to face the future, especially dealing with work and admission to institutions of higher learning as well as the ability to doubt themselves.

Among the proposals to address the problem of graduate unemployment in the individual, including trying to get excellent academic results, do not choose a job, improve their appearance and communications and also eliminate the negative attitude (Nik Mustapha, 2007). This negative attitude will develop a negative self-acceptance and ultimately create a negative self-concept (Azizi et al., 2005). For example, students with low academic performance tend to suffer from low self-concept (as is often customary in mind) will thus affect their confidence (to be skeptical) about the future, including the dimensions of career (do not a job) in the context of this research. To build a positive self-concept, students must develop skills based on their potential. These advantages can increase self-confidence (Azizi et al., 2005). Thus, the dimensions of career – education must be given attention because of concerns over

students' academic performance and their potential to reduce the level of confidence and readiness of polytechnic students in an effort to meet the career and future. Glorious career cannot be formed if the student continues to worry about the performance and their capabilities.

Social dimensions - personal ($r = 0662$, $p = 0.000$) explains the existence of the social dimension of the relationship between the items such as wounding the feelings of others Q119 (.52) and the subject of conversation and ridicule Q120 (.32) with the challenge of personal dimension such as lazy Q156(.82), low self-esteem (.65) and mind worrying about something Q159 (.55) (Mohd Effendi & Ahmad Zamri, 2013). The relationship that exists can be seen from personal dimension items such as laziness, lack of self-confidence, anxiety, forgetfulness, emotional and neglect which is considered as a challenge to create a feeling of concerned if themselves be the subject of conversation and ridicule and hurt the feelings of others if there is a dispute. This relationship is a more internal challenge and strengthening the aspects of control and durability as organized in intelligence to become a key pillar to overcome this challenge. Polytechnic students average 18 to 23 years old are teenagers. They are less able to control themselves and survive in the action as a counter reaction to stimulation challenge. Based on Erikson's theory of development, at the age of 12 to 20 years, the development of adolescent emotions happens and they tend to conflict of emotions. These individuals seek to understand and evaluate themselves while struggling to cope with a situation that is contrary to their self-identity. At this stage, they will form a negative and positive self (Shahabuddin et al., 2007). Self-control from the perspective of intelligence in the face of challenges also be interpreted as the ability to control the self-actions (Kanjanaaroon, 2012; Thi, 2007). Therefore, strengthening the personal and social aspects seriously make it possible to demonstrate the formation of the personality of students towards better value, positive and optimistic.

5.0 CONCLUSION AND REFLECTION

The items in MPCL show good psychometric characteristics of the Rasch model analysis in reliability and separation index. The result indicates the suitability to use these items replication studies into polytechnic context. However, the sufficiency of items to measure challenges as evident in this study needs further consideration. It shows that this instrument was very appropriate in the context of the polytechnics. Thus, it was practical for researchers to use MPCL to identify the problems and challenges of polytechnic students. Polytechnic must take an action to identify the students' problems rather focusing just on academic achievement. For future research, it will be beneficial if the researcher can assessing the psychometric characteristics by employing the Rasch model framework indicates that the entire item in the MPCL fulfills the key assumptions of the Rasch model such as item fit statistics, unidimensionality, local independence, item polarity, and item person map. It also needs to understand the Differential Item Functioning (DIF) of the items in MPCL between groups. DIF analysis is an important tool for the instrument to be more valid and less biased when items that exhibit extreme levels of DIF are identified. In order to expand the usage of MPCL in a different context, the planning to examine the psychometric properties into different kind of

institutions will be advantageous. Thus, the educators and polytechnic can use the information to identify the strength and weaknesses of their students based on the dimensions in MPCL, so that more meaningful content of development program can be developed.

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