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## **An Empirical Examination of the Construct Validity of the Spiritual Maturity Index**

Rodney L. Cooper

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An Empirical Examination  
of the Construct Validity of  
the Spiritual Maturity Index

by  
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Presented to the Faculty of  
Western Conservative Baptist Seminary  
in partial fulfillment  
of the requirements of the degree of  
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Portland, Oregon  
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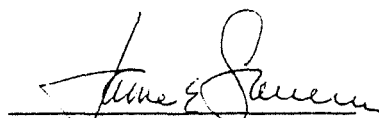

## APPROVAL

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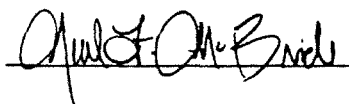
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## DISSERTATION ABSTRACT

In order to do empirical research on religious constructs, various testing instruments have been developed. Yet, many of the instruments developed have not been empirically tested for construct validity to see if they are actually fulfilling their stated purpose. One such instrument which has been developed is the Spiritual Maturity Index. It was the purpose of this study to do an empirical examination of the construct validity of this instrument.

Pastors and seminary students from the Conservative Baptist denomination participated in a study to assess the capability of the Spiritual Maturity Index (SMI) in distinguishing levels of spiritual maturity. Also, an item level factor analysis of the combined SMI and the Spiritual Well-being Scale (SWB) was done to assess divergent validity.

The results of the study indicated that the construct validity of the SMI was questionable when used on this sample.

Correlational relationships between the subscales of the SWB scale and the SMI were very high. These high

correlations suggested the possibility that the scales may be measuring the same construct.

An item level factor analysis of the combination of the SMI and SWB scales suggested the possibility of one "general factor" being measured rather than the two separate constructs of spiritual well-being and spiritual maturity. Scree plots and two confirmatory factor analyses seemed to verify the initial findings.

As a result of this study and the lack of others concerning the construct validity of the SMI, it was recommended that the present administration of the SMI be limited to research studies. These studies should examine the concept of spiritual maturity used by Ellison in the designing of the scale, revise the item pool, and broaden the sample from a restricted homogenous group to a more heterogeneous group.

RUNNING HEAD: Spiritual Maturity

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## CHAPTER I

### INTRODUCTION

In recent years, there has been a renewed interest in the psychology of religion. Researchers are seeking to "more precisely define and objectively measure the construct of religiosity" (Parker, 1984, p. 15).

In order to pursue empirical research in religion, various scales have been developed and introduced to measure key constructs that are of vital importance to spirituality. Examples of instruments developed and introduced for the purpose of measuring spirituality have been the Spiritual Leadership Qualities Inventory (SLQI) (Wichern, 1979), The Spiritual Gifts Inventory (SGI) (McMinn, 1975), the Spiritual Well-being Scale (SWB Scale) (Ellison & Paloutzian, 1979), and the Spiritual Maturity Index (SMI) (Ellison, 1983) among many others. Yet, researchers working in the field of psychology of religion have achieved little success in developing sound measures of religiosity. Basset, Sadler, Kobischen, Skiff, Merrill, Atwater, and Livermore (1981) reviewed 133 instruments designed to measure religious variables and found that only a small percentage demonstrated some

indication of reliability and validity. A major cause of this largely insignificant record is the clear deficiency in the adequate operationalization of religious constructs (Bufford, 1984). If the study of key constructs that relate to the importance of spirituality are to contribute significantly to research in religion, then the instruments used must first of all be reliable and valid.

One construct that appears to be of key importance to spirituality is "spiritual maturity." An instrument that has been recently developed for the measurement of "spiritual maturity" is the Spiritual Maturity Index by C. Ellison (1984).

Currently there is no objective method available for discerning the spiritual maturity of an individual. Computer searches were made with ERIC (Educational Resources Information Center), PSYCHINFO, Dissertation Abstracts, Social Scisearch, and Sociological Abstracts under the guidance of the Western Conservative Baptist Seminary Library Computer Search Operator. None of these showed any type of measuring instrument available, outside of Ellison's Spiritual Maturity Index, for the measurement of the specific construct of spiritual

maturity. Yet, the Spiritual Maturity Index itself has not been empirically validated.

An instrument for the measurement of spiritual maturity could be of significant value to the church community. For instance, such an instrument could help in the assessment of the spiritual growth of a church's congregation. It could also be of value in helping educational institutions such as seminaries, Bible colleges, and churches in structuring or restructuring programs that would enhance and encourage individuals in the process of spiritual growth. Another use for such an instrument would be in possible staff selection, both in churches and educational institutions, to help assess whether or not the person being considered was suitable for the particular position. Finally, it would be most valuable for further research in religious variables. Ellison's Spiritual Maturity Index could be such an instrument.

Therefore, the purpose of this study is to examine the construct validity of the Spiritual Maturity Index by C. Ellison (1983). More specifically, the study is designed to answer the research question: does the Spiritual Maturity Index indeed measure the construct of spiritual maturity based on the criteria and definition

that Ellison has proposed? If Ellison's SMI scale tended toward validity, then the church community and religious research as a whole could be greatly enhanced.

#### Review of the Literature

In the pursuit of fulfilling the stated purpose of this study, a review of the literature in four key areas was examined: spiritual maturity and the Spiritual Maturity Index, spiritual-well being, the concept and pursuit of validity, and factor analysis. This chapter also includes the rationale and purpose of the study as well as stating the objectives and hypotheses to be tested.

#### Spiritual Maturity

One aspect of spiritual health, in general, is spiritual maturity. In the broader psychological sense, a mature or, as Maslow (1971) terms it, self-actualizing person is one who accepts himself and others without guilt or anxiety and is able to form deep and satisfying relationships with others. He is autonomous and independent of social interest and concern. He is problem-oriented rather than self-centered, and is better able to cope with the problems of life because he is more accurate in his perception of reality than others (Coan,



1977; Jahoda, 1958; Maslow, 1970, 1971). To this sketch Maslow and Coan add the characteristic of transcendence, by which they mean the need to deal with the ultimate questions and problems of life.

Recently, theorists have found that the same qualities that are characterized in making up psychological maturity are quite similar to those that make up spiritual maturity. One of the chief traits of the spiritually mature person seems to be autonomy. The spiritually mature individual has the ability to move from the tacitly held, conventionally sanctioned beliefs to a faith that is based not on the consensus of others but upon his own experience and critical reflection (Fowler, 1981).

Autonomy, in this sense, does not mean the right to do as one wishes, nor does it imply complete independence from others. Rather, as Kao (1981) suggests, the autonomous person is self-principled and is in a meaningful relationship with others; autonomy implies interdependence, not independence. Kao also suggests creativity in everyday life and a keen perception of reality as other notable characteristics of the spiritually mature person.

Spiritual maturity also requires a certain degree of independence from one's own self. One must be able to look at oneself critically and to break his self-image in favor of a more realistic one. In the same way, he must be able to overcome his emotional ties in order to end relationships which hamper spiritual growth (May, 1982). This implies the willingness to suffer for the ultimate good and also the ability to cope with suffering (Fowler, 1981; Kao, 1981).

Carter (1974) seems to concur with the above mentioned information on the construct of spiritual maturity. He shows that in both the Biblical sense, as well as the psychological sense, there are five key dimensions to spiritual maturity. They are: (1) having a realistic view of oneself and others, (2) accepting oneself and others, (3) living in the present but having long range goals, (4) having values, and (5) developing one's abilities and coping with the task of living. Carter states that, "the overlap occurs because a mature person in either a psychological or Biblical sense is integrated, has a purposeful or goal directed quality about his life, is open to himself and others" (p. 152).

Ellison, in light of the above mentioned views, seems to be in agreement in his conceptualization of

spiritual maturity. Ellison (1979) asserts that the spiritually mature person is autonomous but self-disciplined as Kao (1981) and Fowler (1981) suggest. Ellison (1979) stresses that the spiritually mature person does not rely upon support from others to form or maintain his beliefs but bases them upon continuous critical reflection and at the same time, he is firm in his faith without being dogmatic about it. The spiritually mature person, according to Ellison, defines his identity in terms of his relationship with God and is in closer and deeper communion with God than is a less spiritually mature person. The spiritually mature person has religious practices and beliefs that are an integral part of his life and find their expression in his daily activities. Therefore, he does not need institutional structures to express his Christianity. Being self-principled, he has definite spiritual goals and bases his life upon them. By the same token he is also more likely to be conscientious about having a devotion time with God, for he will realize that interaction with God is essential for spiritual growth. Ellison stresses that the spiritually mature person makes active use of his spiritual gifts in daily life and shows evidence of the fruit of the spirit. He is not self-centered but is

willing to serve God without reservations and to sacrifice and give of himself for others. When indulgence of his desires and ambitions threaten his spiritual growth, he practices self-restraint and is willing to suffer for the ultimate good. Since he trusts in God and believes that He has the perfect plan for his life, he is able to accept suffering and setbacks without bitterness. The ideas of self-restraint, reality orientation, and altruistic motives are very similar to Maslow's (1971), Coan's (1977), and Jahoda's (1958) view of a mature person. It is with this view of the construct of spiritual maturity that Ellison has developed the Spiritual Maturity Index.

The empirical research that has been done on the construct of spiritual maturity is quite limited. Yet there have been some interesting studies completed on "spiritual maturity." One study in particular is by A. Nauss (1972). He did a longitudinal study on students going from the first through the third years of seminary. He discovered that there was a developmental process to spiritual maturity. He also found that students reaching their third year of seminary were more stable emotionally, more enthusiastic, more trusting, more self-assured and more relaxed. Ellison, in his development of

the Spiritual Maturity Index, seems, like Nauss (1972), to be tapping into the developmental process of spiritual growth.

The literature review, thus far, has generally described spiritual maturity according to several key theorists on spiritual maturity and specifically according to the conceptualization of Ellison. It appears that Ellison's (1979) conceptualization of spiritual maturity is basically in agreement with the other theorists mentioned, namely, that spiritual maturity is a growth process which comes about in levels or stages. The following section will, therefore, discuss the SMI and the specific criteria that Ellison used in developing the Spiritual Maturity Index.

#### Spiritual Maturity Index

The SMI developed by C. Ellison (1983) originally consisted of 20 items but was later expanded to a 30 item scale. The SMI purports to measure one's spiritual development as opposed to one's state of spiritual health. The items used in the development of the scale are based on the following conceptualization of spiritual maturity:

1. Freedom to express Christianity without institutional structure

2. Spontaneous expression of beliefs and practices in daily life
  3. Maintenance of faith and practice regardless of social support
  4. Firm beliefs without being dogmatic or narrow minded
  5. Focus on giving rather than self
  6. Definite purpose for life related to spiritual life
  7. Sacrificial
  8. Close relationship with God/control identity-- service of God
  9. Actively uses spiritual gifts
  10. Evidences the fruit of the spirit
  11. Ultimate goals are spiritually focused
  12. Able to accept negatives of life as part of God's plan without becoming bitter
  13. Forsake self-gain if the gain violates or detracts from spiritual principles
  14. Spends time studying the scriptures in depth
  15. Has active desire to share personal faith
  16. Tries to love neighbor as self
  17. Has a personal prayer life
  18. Perceives growth in personal life (Ellison, 1983)
- Ellison perceives spiritual maturity as being a growth concept. According to Ellison, spiritual maturity

is analogous to physical development and implies levels or stages as part of the process towards maturity. Thus, the more an individual grows concerning the things of God, the more that person would become spiritually mature. In Ellison's view, spiritual maturity, is a developmental and continuous process.

For instance, Ellison's concept of the progression of spiritual maturity would imply that upon graduation from seminary the process of spiritual maturity would continue. Therefore, an individual who has been out of seminary for two years would be more spiritually mature than an individual just graduating from seminary and an individual who had been out 5 years would be more mature than both.

Very little research has been done on the SMI. Several researchers are in the process of collecting data, but little is available at this point. What little research is available does not deal directly with the validity of the scale itself. Yet, a key study by Bufford (1984) using the SMI in conjunction with the Spiritual Well-being scale, has found a high correlation between the SMI and the Spiritual Well-being Scale (Ellison, 1979). These results suggest that the two scales may be measuring the same construct. It would

consequently be very important, for validation purposes, to discover whether or not the SMI was measuring a different construct than that of the SWB scale. Therefore, the following section will deal with the importance of distinguishing spiritual well-being from spiritual maturity and why the SWB Scale should be used in the study of the SMI.

#### Spiritual Well-being

David Moberg has been a central figure in the growing research interest in spiritual well-being. In a series of articles going back to the early 1970's, Moberg (1971, 1977a, 1977b) has been developing theoretical and empirical approaches to the study of spiritual well-being. In review of the quality of life research, Moberg and Brusek (1978) discovered that measures of religiosity were virtually ignored as indicators of well-being. Moberg asserts that the spiritual aspect of quality of life needs to be explored and has played a significant role in stimulating research in this area.

Ellison and Paloutzian (1979) have built upon Moberg's foundational work and have gone further in defining and operationalizing the spiritual well-being construct. Ellison and Paloutzian agree with Moberg and Brusek's (1978) two faceted conceptualization of the



spiritual well-being construct: the vertical and the horizontal. The vertical dimension refers to one's sense of well-being in his relationship with God and the horizontal refers to one's perception of life's purpose and satisfaction in life apart from religious reference (Ellison & Paloutzian, 1979).

According to Ellison and Paloutzian, spiritual well-being is a dynamic internal capacity that plays a major part in the ongoing life of each individual. Spiritual maturity differs from spiritual well-being in that spiritual maturity is conceptualized more as a growth process whereas spiritual well-being comes from an underlying state of spiritual health. "A new born Christian, for example, may have a very positive sense of spiritual well-being but be very immature spiritually" (Ellison, 1983, p.332).

The SWB scale consists of ten items measuring the vertical dimension of one's relationship to God (Religious well-being) and 10 items measuring the horizontal component of one's sense of purpose and satisfaction in life (Existential well-being). Factor analysis of the SWB scale by Ellison (1983) has supported the existence of one factor comprising the Religious Well-being scale and two sub-factors, one measuring life

direction and the other measuring life satisfaction, which are loaded together on the Existential well-being scale. Reliability was demonstrated by test-retest coefficients above .85 and internal consistency coefficients of greater than .75.

As mentioned earlier, Bufford (1984) found that the SMI correlated highly with the SWB. The high correlation between the SMI and the SWB scale suggests that the two scales may be measuring the same construct. It is, therefore, important that the Spiritual Well-being scale be used in this study because: (a) A number of studies have yielded encouraging results concerning the SWB scales reliability and validity (Bufford, 1984; Ellison & Paloutzian, 1978; Ellison & Paloutzian, 1979; & Palmer, 1985). (b) The combination of the two scales together, using the proper statistical technique, would help to clarify whether or not the SMI is actually measuring the construct of spiritual maturity or measuring the construct of spiritual well-being, which the SWB scale already measures. The key ingredient to the effectiveness of the SMI, or any instrument's effectiveness, is its validity (Kerlinger, 1973). The issues of validity has been repeatedly echoed throughout the previous sections of this paper. Yet, before

validity can be pursued, one must have a general understanding of the concept of validity. Once there is a basic understanding of the concept of validity, then the appropriate means of pursuing the validation process can be chosen. The following section's purpose is to explain the concept of validity and how to proceed in the validation process.

#### The Concept of Validity

A concise definition of validity is offered by Anastasi (1982): "the validity of a test concerns what the test measures and how well it does so" (p. 131). Allen and Yen (1979) confirm this definition when they say:

A test has validity if it measures what it purports to measure. For example, a test that is used to screen job applicants is valid if its scores are highly related to examinees' future performance on the job. A valid intelligence test discriminates among people who vary in intelligence. A valid personality test generates scores that reflect meaningful differences in personality. Both the test developer and the test user have a responsibility to ensure that the tests they provide and use are valid tests. (p. 95)

No test can be said to have "high" validity or "low" validity in the abstract. The testing instrument's validity must be established with reference to the particular use for which the test is being considered (Anastasi, 1982).

Validity can be assessed in several ways, depending on the test and its intended use (Allen & Yen, 1979). According to the Standards for Educational and Psychological Tests and Manuals (1966), there are three kinds of validity coefficients which may distinguish three possible aims of testing. They are as follows:

1. The test user wishes to determine how an individual performs at present in a universe of situations that the test situation is claimed to represent. An example would be most achievement tests used in schools to measure the students performance on a sample of questions to represent a certain phase of educational achievement.
2. The test user wishes to forecast an individual's future standing or to estimate an individual's present standing on some variable of particular significance that is different from the test. For example, an academic aptitude may forecast grades or a brief adjustment

inventory may estimate what the outcome would be of a careful psychological examination.

3. The test user wishes to infer the degree to which the individual possesses some hypothetical trait or quality (construct) presumed to be reflected in the test performance. For example, he wants to know whether the individual stands high on some proposed abstract trait such as "intelligence" or "creativity" that cannot be observed directly. This may be done to learn something about the individual, or it may be done to study the test itself, to study its relationship to other tests, or to develop psychological theory.

To determine how suitable a test is for each of these uses, it is necessary to gather the appropriate sort of validity information. The kind of information to be gathered depends on the aim of testing rather than on the type of test. The three aspects of validity corresponding to the three aims of testing may be named content validity, criterion-related validity, and construct validity (Allen & Yen, 1979; Cronbach, 1970; Nunally, 1967; Sax, 1980).

Content validity is the extent to which items on a test ask students to demonstrate skills and competencies required by the objectives (Sax, 1980). Thorndike (1982)

agrees when he says, "content validity is important especially when a test has been designed to appraise the degree of mastery of some domain of knowledge or skill . . . ." (p. 184). Allen and Yen (1979) stress that there are two types of content validity: face validity and logical validity. A test has face validity when an examination of the items leads to the conclusion that the items are measuring what they are supposed to be measuring. Logical validity is based on a careful comparison of the items to the definition of the domain being measured (Allen & Yen, 1979; Anastasi, 1982).

Criterion-related validity is associated with how effective a test is in predicting an individual's behavior in specified situations (Anastasi, 1968; Kerlinger, 1973). There are two types of coefficients in criterion-related validity: (1) the correlation of a set of measurements with an external criterion concomitantly, and (2) the same type of correlation where there is a time lapse between measurements and a criterion. The former is called concurrent validity and the later is called predictive validity (Sax, 1980).

The third type of validity is called construct validity and "is the most recently developed form of validity" (Cronbach & Meehl, 1955). A test's construct

validity is the degree to which it measures the theoretical construct or trait that it was designed to measure (Allen & Yen, 1979). Sax (1980) agrees when he says, "construct validity is the extent to which measurements justify or support the existence of psychological traits, abilities or attributes" (p. 309). Thorndike (1982) echoes others when he says, "What trait (or traits) does the test measure? How well does it measure them" (p.186)?

It seems, based upon the stated definitions of content, criterion-related, and construct validity, that the Spiritual Maturity Index is most appropriately evaluated under the category of construct validity. The reason for placing the SMI in the category of construct validity is because it is attempting to measure the existence of the attribute of "spiritual maturity" in an individual.

Once the type of validity for an instrument has been established, the next step is to determine how that type of validity is to be pursued or established. The following section will clarify the process one might use in establishing the construct validity of an instrument.

### The Pursuit of Construct Validity

Determining the validity of a construct is important when the "test developer or test user wishes to learn more about the psychological qualities being measured by a test than can be learned from a single criterion-related validity coefficient" (APA, 1974, p. 30). A test designed for one purpose may, upon analysis, be found to be a better measure of something quite different or a measure of nothing of consequence (Sax, 1980).

Essentially, examining construct validity requires a combination of logical and empirical attack (APA, 1966). Studies of construct validity check on the theory underlying the test. Cronbach (1970) states, "there are three parts to construct validation: suggesting what constructs possibly account for test performance, deriving hypotheses from the theory involving the construct, and testing the hypothesis empirically" (p. 143). Allen and Yen (1979) agree with Cronbach when they say that:

Establishing construct validity is an ongoing process. Based on current theory regarding the trait being measured, the test developer makes predictions about how the test scores should behave in various situations. These predictions are then tested. If



the predictions are supported by the data, construct validity is enhanced. If the predictions are not supported by the data then three alternatives can be drawn: (1) the experiment was flawed, (2) the theory was wrong and should be revised, and (3) the test does not measure the trait. (p.108)

The steps to construct validation as outlined above by Allen and Yen (1979) are also endorsed by The Standards for Educational and Psychological Tests and Manuals (APA, 1966).

Their procedure also involves three steps. First, the investigator inquires: From this theory, what hypotheses may we make regarding the behavior of persons with high or low scores? Second, he gathers data to test the hypotheses. He then makes an inference as to whether the theory is adequate to explain the data collected. If the theory fails to account for the data, he should revise the test interpretation, reformulate the theory, or reject the theory altogether. Fresh evidence would be required to demonstrate construct validity for the revised interpretation.

The question that still remains, though, pertains to the exact process of "how" one goes about validating a

construct. Sax (1980) stresses that there are at least six steps involved in construct validity. The six steps are:

1. An explicit justification that the construct has important educational or psychological properties.
2. A distinction must be made between the hypothesized construct and other constructs that may appear similar.
3. The hypothesized construct must be measurable.
4. Evidence should be obtained from different sources to support the construct.
5. Evidence should be obtained to demonstrate that constructs do not correlate with irrelevant factors.
6. The construct is modified to conform with additional information.

Thorndike (1982) seems to be in general agreement with Sax and lists four types of evidence one could pursue in construct validity. They are:

1. Judgmental comparison of the nature of the task with our conception of the construct.
2. Correlational data, showing correlations between the test under study and other measures (tests or life events) believed to reflect or depend on the attribute in question.

3. Group difference data, comparing test scores of subgroups that might be expected to differ on the attribute.
4. Data showing the effects of treatments or experimental interventions that might be expected to influence expression of the attribute.

Allen and Yen (1979) seem to be in agreement with Sax (1980) and Thorndike (1982) in their four ways of pursuing construct validity. These are:

1. Group differences. If the theory implies group differences (or no group differences) in test scores, this prediction could be studied by collecting data and conducting a reasonable statistical test of the hypothesis.
2. Changes. The theory may imply that test scores change with time or after experimental intervention.
3. Correlations. The theory might lead the test developer to predict that one or more correlations are positive, negative, or zero.
4. Process. Based on one theory we might predict that all examinees are processing or thinking about the test items in the same way.

It seems that there is a general agreement of the above mentioned authors (Allen & Yen, 1979; Sax, 1980;

Thorndike, 1982) as well as others (Anastasi, 1982; Kerlinger, 1973) about how to go about pursuing construct validity. All of them seem to agree that group differences, differences with other similar constructs, changes, correlations and evidence from different sources to support the construct are key ways to go about the validation process for construct validity.

In summary, the previous sections have discussed the concept of validity and the pursuit of validity. It seems that, of the three types of validity mentioned, the Spiritual Maturity Index fits best within the construct validity category. The Spiritual Maturity Index was developed by C. Ellison (1983) to measure the construct of "spiritual maturity" based upon the criteria (traits or qualities) that he has deemed important in the make-up of spiritual maturity.

The pursuit of validity section pointed out the different methods available in the process of establishing the construct validity of an instrument. It is with a combination of these methods in mind, using especially Sax's (1980) six steps, that the validation process concerning the Spiritual Maturity Index was pursued.

Also, there are several statistical techniques one could use in pursuing construct validity. Yet, the literature seems to indicate that factor analysis is the statistical technique used most often in helping to establish the construct validity of an instrument. Therefore, the following section will give the rationale for using factor analysis in this study as well as defining and describing the statistic itself.

#### Factor Analysis

One of the key steps in the pursuit of construct validity is to be sure that there is a distinction between the hypothesized construct and other constructs that may appear similar (Sax, 1980). The reason for this process in the pursuit of validity is so that convergent and discriminant validity may be established. Convergent validity would be indicated by relatively high correlations among those measures designed to assess a common construct (Sax, 1980; Thorndike, 1982). Discriminant validity would be indicated by much lower correlations between those measures and ones designed to measure some other construct (Thorndike, 1982).

There seems to be a general agreement among psychometric experts (Allen & Yen, 1979; Anastasi, 1982; Kerlinger, 1973; Sax, 1980; Thorndike, 1982) that factor

analysis is the key statistic to determine discriminant and convergent validity. Kerlinger (1973) also stresses that "factor analysis can be conceived as a construct validity tool" (p. 685). Kerlinger (1973) points out that construct validity seeks the meaning of a construct through the relations between the construct and other constructs. It is factor analysis that shows this relationship.

Thorndike (1982) also points out the value of factor analysis for construct validity purposes by stating that: The test in which we are interested may be correlated both with other tests designed to assess the same attribute and with tests designed to measure other attributes that, one fears, may contaminate the new test as a measure of the attribute it was designed to measure. One's test should show substantially higher correlations with other measures designed to assess the same attribute than with measures designed to assess other attributes. This can be formalized through the procedures of factor analysis, in which measures designed to appraise the same attribute should load on a common factor. (p. 187)

The Statistical Package for the Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975)

define factor analysis as "a statistical technique that attempts to represent relationships among sets of interrelated variables by a smaller set of relatively independent and interpretable, but not directly observable factors" (p. 241). Allen and Yen (1979) agree by stressing that factor analysis is a term that represents a large number of different mathematical procedures for analyzing the interrelationships among a set of variables and for explaining these interrelationships in terms of a reduced number of variables, called factors. A factor is a hypothetical variable that influences scores on one or more observed variables (Allen & Yen, 1979).

The method of factor analysis that is most often used for construct validity purposes is called principal components analysis (Kerlinger, 1973). Perhaps its major solution feature is that it extracts a maximum amount of variance as each factor is calculated. In other words, the first factor extracts the most variance, the second the next most variance and so on (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). The results of using this model is that the variables that are highly and positively correlated should be near each other and away from other variables with which they do not correlate

(Gorsuch, 1983). Oftentimes, factorial validity is established for a new test by using a marker test which has a different set of variables and has a known set of factors (Allen & Yen, 1979). An indication that the new test is valid is to combine the variables of the new test and the marker test and then do a factor analysis. The new test's loadings, if measuring a different construct than the marker test, should be low and not correlate with the factors of the marker test (Allen & Yen, 1979; Gorsuch, 1982; Thorndike, 1982). This would therefore establish discriminant validity and show that the new test is indeed measuring a different construct.

Factor analysis usually proceeds in four steps. First, the correlation matrix for all variables is computed. The second step is the factor extraction phase. It is here that the number of factors and the method for extracting them must be determined. To help decide how many factors are actually needed to represent the data, it is helpful to examine the percentage of total variance explained by each factor. The total variance is the sum of the variance of each of the variables. For simplicity, all variables and factors are expressed in standardized form with a mean of 0 and a standard deviation of 1. The total variance explained by



each factor is determined by its eigenvalue. Usually, an "eigenvalue greater than or equal to 1" (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975, p. 244) suggests that only factors that account for variance greater than 1 should be included. Factors with a variance less than 1 are no better than a single variable, since each variable has a variance of 1. It is this eigenvalue of 1, as suggested by the SPSS manual, that was used in this study. If there are a large number of factors with an eigenvalue greater than 1, then a Scree plot or test may be necessary. Gorsuch (1982) states that the use of a Scree test or plot is indicated when the battery of variables is measuring a limited number of factors well and a larger number of trivial, specific, and error factors much less well. Therefore, the predominant factors account for most of the variance and are large, whereas the other factors are quite numerous and small. Because the principal factor solution extracts factors by size, the substantive factors will be extracted first and the smaller trivial factors will be removed later. Because the smaller factors are so numerous and are taken out in order of size, it would be expected that plotting them on a graph would result in a straight line downward. The dominant factors should not fall on this line because

some of them will be much more dominant than others and they will be stronger than the trivial factors. The Scree plot visually shows the dominance of the key factors over the less trivial ones.

The third step in the factor analysis is the rotation phase. The most commonly used method is the varimax method (Gorsuch, 1983; Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). This method attempts to minimize the number of variables that have high loadings on a factor. This will also enhance the interpretability of the factors. If a simple structure has been achieved, there should be few, if any, variables that have large loadings on more than one factor.

The fourth step to factor analysis is interpretation. In order to interpret the factors, the factor pattern matrix will be sorted so that the variables with high loadings on the same factor will appear together. This will be accomplished through the SPSS/PC statistical package on the computer.

The key to interpretation to this study is not the naming of the factors when they are formed but the items that cluster together to make up each factor. The variables for the SMI Scale and the SWB Scale, if measuring different constructs, should separate from one

another and cluster on separate factors. But, if there is an intermixing of the variables from the two scales on the different factors then there arises a serious question as to whether the SMI Scale is measuring a different construct than the SWB Scale.

The previous discussion has centered around the use of the statistical technique of factor analysis to establish construct validity. It has been demonstrated from the literature that factor analysis is an excellent technique to establish construct validity. Factor analysis, in effect, tells us what tests or measures belong together--which ones virtually measure the same thing, and how much they do so (Kerlinger, 1973).

Therefore, the principle components factor analysis with varimax rotation was used in determining the construct validity of the SMI Scale.

#### Rationale for the Study

Kerlinger (1973) emphasizes the fact that all measuring instruments must be critically examined for their validity and reliability. He further states that "the day of the tolerance of inadequate measurement has ended" (p. 473). Thus, in order for an instrument to be effective in the measurement of religious variables, it

must be proven to be reliable and valid. Reliability refers to the consistency of scores obtained by the same persons when reexamined with the same test on different occasions, or with different sets of equivalent items, or under variable examining conditions (Anastasi, 1982).

Sax (1980) agrees with Anastasi by stating that "reliability describes the extent to which measurements can be depended on to provide consistent, unambiguous information" (p. 255).

Yet, a test can be reliable but not valid. Validity of a test concerns what the test measures and how well it does it (Anastasi, 1982). Allen and Yen (1979) agree when they say that "a test has validity if it measures what it purports to measure" (p. 95).

Sax (1980) also stresses that, "To the extent that measurements fail to improve effective decision making by providing misleading or irrelevant information, they are invalid. No matter how reliable they are, measurements are useless if they are not valid for some desired purpose" (p. 289). Anastasi goes on to say that a test should demonstrate validity for a particular purpose or use before it can be employed confidently on a widespread basis, and in fact, be interpretable (Anastasi, 1982).

It is therefore paramount that the construct validity of the Spiritual Maturity Index be empirically demonstrated in order for it to be "useful" in the Christian community and have a measure of psychometric credibility.

#### Purpose of the Study

The purpose of this study is to examine the construct validity of the Spiritual Maturity Index. As mentioned earlier, the measurement of spiritual maturity could be of significant value to the church community. If the SMI were able to accurately measure the construct of spiritual maturity it could be used to help churches and educational institutions in the assessment of the spiritual growth of their constituency. Also, the SMI could be of value in helping churches and educational institutions structure programs that would enhance and encourage individuals in the process of spiritual growth. Another use for the SMI, if proven valid, would be in possible staff selection in churches and religious educational institutions to help determine if the person they were considering was suitable for a particular position. Finally, the SMI would be most valuable for further research in the area of spirituality. Thus, this

study sought to determine the validity of the construct of spiritual maturity purportedly measured by the SMI.

### Objectives

This study was intended to fill the gap in the research on the validity of the Spiritual Maturity Index by Ellison (1983). It is anticipated that if the SMI is indeed found to be valid in measuring the construct of spiritual maturity, then the overall growth of the church community would be enhanced. In answering the research question, these objectives were established:

1. The random selection of both seminary students, from two evangelical seminaries, and pastors, from the Conservative Baptists of Oregon to take the SMI to see if the scale is actually measuring the differences of spiritual maturity among the groups.
2. The use of the Spiritual Well-being Scale to be used as a marker test in establishing divergent validity.
3. The utilization of the appropriate statistical techniques to determine the validity of the Spiritual Maturity Index.
4. The construction of a demographic questionnaire to gather the necessary data on the subjects participating in the study.

5. The interpretation of the study's results provided to the participating seminaries and pastor's concerning the validity of the SMI and it's possible uses.

### Hypotheses

The hypotheses concerning the Spiritual Maturity Index are as follows:

1. The SMI will show a significant relationship between spiritual maturity and the accumulation of education units with ministry experience being controlled.
2. The SMI will show a significant relationship between ministry experience and spiritual maturity when religious education units are controlled.
3. An item factor analysis on the SWB Scale and SMI combined will show the distinct clustering of items on factors that are unique to the construct of each scale.

These hypotheses were chosen for the purpose of helping to clarify the construct validity of the SMI. Kerlinger (1973) indicates that when construct validity is pursued one will also be looking at content and criterion-related validity as well. Anastasi (1982) agrees with Kerlinger by stating that "content,

criterion-related, and construct validation do not correspond to distinct or logically coordinate categories. On the contrary, construct validity is a comprehensive concept, which includes the other styles" (p. 153).

Hypotheses one and two deal more with the criterion-related validity aspects of the SMI. Criterion-related validity is associated with how effective a test is in predicting an individual's behavior in specified situations (Anastasi, 1982; Kerlinger, 1973). According to Ellison's (1979) theory, spiritual maturity is a growth process. Other theorists on spiritual maturity, such as Kao (1981), Carter (1974), and Fowler (1981), agree with Ellison that spiritual maturity is a growth process which takes place in levels or stages. There also seems to be agreement among Ellison and the theorists mentioned in this study that a person's knowledge of God and the experiencing of that knowledge are the two key criteria which would bring about growth and spiritual maturity.

The criteria of a person's knowledge of God and the experiencing of that knowledge would be seen as predictors of a person's growth or level of spiritual maturity. In pursuing the construct validity of the SMI,



the criteria of a person's knowledge of God and the experiencing of that knowledge should show a significant relationship to spiritual maturity as measured by the SMI. Hypotheses one and two examined these relationships since both were seen as important in the development of the construct of spiritual maturity.

Hypothesis three was pursued for the purpose of establishing a type of construct validity called divergent validity. Sax (1980) stresses the importance of showing a distinction between the hypothesized construct and other constructs which may appear similar. A factor analysis at the item level provides an empirical explanation of variance attributable to each item in the particular sample surveyed as well as clarifying the divergent validity of the scale by demonstrating empirically the relationship between and among questions on the SWB and SMI scales.

#### Limitations of the Study

1. The data gathered will not allow inferences about the causality of spiritual maturity.
2. Generalizations will be somewhat limited because the seminary student population and pastor population is limited to the Conservative Baptist denomination only.

3. The data is based upon self-report. Any inaccuracy due to imperfect recall and inaccurate reporting of the data will distort the findings to some unknown degree.

#### Definition of Terms

1. Christian: An individual who has trusted Jesus Christ for the forgiveness of sins and eternal life.
2. Conservative Baptists: An evangelical denomination which adheres to the basic, core fundamental doctrines of Christianity.
3. Conservative Baptists of Oregon: A regional part of the denomination of the Conservative Baptist denomination which serves the state of Oregon.
4. Denver Conservative Baptist Seminary: An evangelical theological seminary which is part of the Conservative Baptist denomination located in Denver, Colorado.
5. Evangelical: A person or organization claiming to adhere to the basic, core fundamental doctrines of Christianity.
6. Factor Analysis: A statistical technique that attempts to represent relationships among sets of interrelated variables by a smaller set of

relatively independent and interpretable, but not directly observable, factors (SPSS Manual).

7. Religiousness: The degree to which an individual is involved in religion or religious activities.
8. Spiritual Maturity: An external expression of spiritual health through certain characteristics which develop in levels or stages. This construct is measured by the summed scores of the Spiritual Maturity Index.
9. Spiritual Well-being: An internal expression of spiritual health which is comprised of the two dimensions of Religious and Existential Well-Being subscales of the Spiritual Well-Being Scale.
10. Western Conservative Baptist Seminary: An evangelical theological seminary which is affiliated with the Conservative Baptist denomination in Portland, Oregon.

### Summary

In order to do empirical research on religious constructs, various testing instruments have been developed. Yet, the vital question that must be asked concerning these tests is "does the instrument measure

what it claims to measure?" and if so, "how well does it measure what it is designed to measure?"

One such test which has been developed is the Spiritual Maturity Index by C. Ellison (1983). The major purpose of this chapter was to demonstrate the need for validation of the SMI as a testing instrument for the construct of spiritual maturity. The opening sections of the chapter established the importance of validity to a measuring instrument. Later in the chapter it was stressed how validity has been a problem for many instruments in the area of empirical research in religion.

The literature review developed the rationale for the importance of doing a validation study on the SMI through the presentation of pertinent information on spiritual maturity, spiritual well-being, and the statistical technique of factor analysis. The final two sections of the chapter covered the limitations of the study and definitions of terms used in the research.

## CHAPTER II

### METHODS

This study was designed to determine the validity of the Spiritual Maturity Index. The methods used for collecting and statistically analyzing the data needed to test the study's hypotheses are set forth in this chapter. They will be discussed in five sections:

(a) Subjects, (b) Variables Investigated, (c) Instruments, (d) Procedure, and (e) Statistical Design.

#### Subjects

Questionnaires and inventories were sent to 400 subjects: 250 seminary students from the campuses of Denver Conservative Baptist Seminary and Western Conservative Baptist Seminary and 150 pastors from the Conservative Baptists of Oregon.

The actual number of individuals choosing to participate out of the 400 surveyed was 268. The population of pastors and seminary students was chosen because of the educational and experiential elements needed to properly test the hypotheses proposed in this

study. Also, if the SMI successfully delineates the growth process among this homogenous sample, no matter how minute, then there would be a good possibility it would be even more successful among a more diverse and heterogeneous sample. This is why the Conservative Baptist denomination was chosen. According to Ellison the developmental process of spiritual maturity should be evidenced in increasing proportions with the addition of education units and experience. The SMI, if valid, would pick up this increase in spiritual maturity. Pastors are a very important sample in this study because they would be in the best position to have had seminary education and experience. In using this group one is able to hopefully see the effects that experience has on spiritual maturity when compared to those with seminary education only.

The 250 students from the two seminaries were randomly selected from the student lists of the total enrollment of each seminary. The pastors were selected from the 1986 directory and mailing lists of the Conservative Baptists of Oregon. A questionnaire was sent to all 150 of the pastors of the Conservative Baptist of Oregon due to their limited number in the state of Oregon.

Permission to select students from the seminaries and the pastor's organizations was obtained from the academic deans of the respective seminaries. Permission to send questionnaires to all of the pastors of the Conservative Baptist pastors of Oregon was obtained from the executive director of the Conservative Baptists of Oregon.

#### Variables Investigated

##### Dependent Variables

The dependent variables in the study were the scores yielded by Ellison's (1984) Spiritual Maturity Index and Ellison and Paloutzian's (1979) Spiritual Well-being Scale. Although the SWB scale has a total well-being score, a summed score for Religious well-being items, and a summed score for the Existential well-being items, the total well-being score was the score used in this study.

The spiritual maturity of the subjects was represented by their scores on the SMI. The SWB scores were used for two purposes: (a) to see how high the correlation was between the SWB and the SMI, and (b) to do an item level factor analysis of the two scales combined to see whether the SMI scale was measuring a construct different than that of the SWB scale.

### Independent Variables

Each of these independent variables was selected because of its potential to account for a portion of the variance in the SMI scores.

1. Age: This variable was included mainly for descriptive purposes. Subjects were asked to write their age in years.

2. Gender: Again, gender was intended to be primarily a descriptive variable.

3. Marital Status: The main reason for the inclusion of marital status in this study is that marital status has been shown to have a clear relationship with one's physical and mental health. A study by the National Center for Health Statistics (cited in Stuart, 1980) revealed that the physical health of married individuals is superior to that of divorced, separated, and single adults in nearly all of the examined categories. It would be interesting to see whether this variable is related to the spiritual maturity of the individual. The variable was measured by providing the respondents with six possible categories to describe their marital status: "Single," "Married," "Separated," "Widowed," "Divorced," and "Living together."



4. Ethnic background: This variable was included for descriptive purposes.

5. Education: This variable was included for descriptive purposes.

6. Formal Religious Education: Bufford (1984) found religious knowledge was positively correlated with scores on the SWB, RWB, and the EWB scales in a religious sample of community members. There could also be a possible correlation with spiritual maturity as well. The intent of this variable was to accurately measure the number of years of formal religious education the respondents had completed at a Bible School, Bible College, or Seminary. The choices ranged from "None" to the number of years in each category mentioned above.

7. Current Enrollment in Seminary: This was for informational purposes.

8. Pastoral Experience: It is also believed that the number of years an individual was in the pastorate could influence the spiritual maturity of the person. The intent of this variable was to accurately measure the number of years of pastoral experience the respondents have accumulated. There is a space where the respondent can place the number of months or years they have been in the pastorate.

## Instruments

### Spiritual Maturity Index

The Spiritual Maturity Index (SMI) developed by Ellison (1984) was used as the measure of spiritual maturity in this study. This instrument is a general measure of spiritual maturity which conceptualizes the construct of "spiritual maturity" as a continuous developmental process. The SMI consists of 30 self-report items scaled on a six point Likert format with reverse scoring on half of the questions with no midpoint. The conceptualization upon which the items of the scale are based can be referred to in Chapter I under the heading "Spiritual Maturity Index."

### Spiritual Well-being

The Spiritual Well-being scale (SWB scale) was used in this study for the purpose of clarifying whether or not the SMI was indeed measuring the construct of spiritual maturity or was duplicating the measurement of the construct of spiritual well-being.

The SWB Scale consists of 20 self-report items scored in a Likert six point format ranging from strongly agree to strongly disagree. Responses for each of the items are scored 1 to 6 with the higher number

representing greater well-being. Reverse scoring is employed on negatively worded items. The 10 odd numbered items assess Religious well-being and contain a reference to God. The 10 even-numbered items assess Existential well-being and contain no reference to God. The SWB scale has demonstrated concurrent and construct validity through factor analysis of items and correlations with a variety of constructs and theoretically related scales.

#### Demographic Questionnaire

Along with the instruments, an 8 item questionnaire was developed to get key background information that would be pertinent to the study. In order to achieve a high rate of return, the questionnaire, along with the SMI and the SWB Scale, was sent out using the Dillman Total Design Method (1978). Researchers who have used this method in complete detail in their mail surveys averaged a 77 percent response rate, while those who used this method in part averaged 71 percent (Dillman, 1978). This study will be using Dillman's method in part.

The two segments of the questionnaire, in the order in which they appear, are: the personal data sheet, which includes one item concerning eight items concerning demographic information; and the 30 item SMI and the 20

item SWB Scale combined as one instrument (see Appendix A).

A letter of introduction was written by Dr. Cook, Academic Dean of Western Conservative Baptist Seminary, to Western Conservative Baptist students who were randomly chosen from class lists and asked to participate in the study. The purpose of this letter was to introduce the students to the nature of the study and ask their participation in filling out and returning the questionnaire. A similar letter of introduction was written by Dr. Haddon Robinson, President of Denver Conservative Baptist Seminary to Denver Seminary students and by Rev. Larry McCracken, General Director of the Conservative Baptist Churches of Oregon, to pastors also showing support for the study as well as urging participation from those who were sent a questionnaire (see Appendix B).

Also, an introductory paragraph introducing the study to pastors and general instructions for taking the questionnaire were placed on the front of each packet (see Appendix C).

In addition to the cover letters, two other letters were developed as part of the design method: a postcard reminder, and a second follow-up letter (see Appendix D).

### Procedure

The data for this research were collected by mail questionnaire during January and February of 1986. On January 13, 1986, the cover letter, questionnaire, and return envelope were sent to all pastors of the Conservative Baptists of Oregon. Also, 250 questionnaires were sent to randomly selected seminary students at the Western Conservative Baptist Seminary and Denver Conservative Baptist Seminary to be distributed through the campus mail. Each questionnaire was stamped with an individual identification number to ensure that follow-up mailings were sent only to non-respondents.

There were two follow-up mailings conducted during the data collection period. On January 20, 1986, one week after the original mailout, a postcard follow-up was sent to all recipients of the first mailing. On February 8, 1986, three weeks after the original mailout, a second follow-up letter accompanied by a replacement questionnaire and return envelope was sent to all non-respondents.

### Statistical Design

Formulas described in the Statistical package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) were used to examine the hypotheses. A simple regression analysis was used for the testing of hypothesis one, which states: The SMI will show a significant relationship between spiritual maturity and the accumulation of religious education units when ministry experience is controlled.

Simple regression analysis was also used for hypothesis number two, which states: The SMI will show a significant relationship between spiritual maturity and ministry experience when formal religious education is controlled. Kerlinger (1973) states that regression analysis is a method for studying the effects and magnitudes of the effects of one or more independent variables on one dependent variable using principles of correlation and regression.

A principle components factor analysis with Varimax rotation was used to do an item level analysis of the combined SWB and SMI scales to help establish whether the SMI was measuring a construct different than that of the SWB scale. This addressed hypothesis number three, which

states: An item factor analysis on the combined SMI and SWB scales will show the distinct clustering of items on factors that are unique to the construct of each scale. Factor loadings of the items with an eigenvalue of 1% of the variance or more were considered significant.

### CHAPTER III

#### RESULTS

This chapter presents the statistical methods used to test the hypotheses of this study and the results obtained. Data collected from the 268 subjects produced scores from the combination of two self-report inventories for a total of 50 variables for each subject.

#### Subjects

Participants in this study were either seminary students currently enrolled in seminary or pastors of churches in the state of Oregon. All participants in the study were of the Conservative Baptist denomination. It should be noted that the nonrandom group (pastors) did not differ significantly on mean scores from the random group (seminary students) because of sampling procedures. It should also be noted that there was a 70% return rate from the participants asked to fill out the questionnaire (164 from seminary students and 104 from pastors). The 70% return rate gives greater credence to the the results of the study in that a 50% return rate is considered adequate (Dillman, 1978).



The sample population was selected for four reasons. First, the sample was composed of individuals who would most likely have both religious educational training and experience in the ministry. These two variables were important for the sample to have due to the hypotheses being tested. Second, the SMI is theoretically capable of showing a linear progression in spiritual maturity. For instance, a pastor with experience and education would, according to Ellison's concept of spiritual maturity, be more spiritually mature than a third year seminarian with little or no experience. The pastor and seminary student sample allows for the examination of this theoretical postulate. Third, the SMI is currently being used only for experimental purposes and has not been fully validated. Since this is a construct validity study, it is important to see whether there are differences within a homogenous sample before going to a heterogeneous sample. Therefore, the Conservative Baptist denomination was chosen for that reason. Finally, the availability of the subjects for testing was a key consideration. The importance of the nature of the group on which validity is examined cannot be underestimated (Anastasi, 1982). The American Psychological

Association's (1974) Standards for Educational and Psychological Tests states:

Any selective factor determining the composition of the validation sample should be indicated in a manual or research report. The sample should be described in terms of those variables known or thought to affect validity. Evidence of validity should be obtained for subjects who are of the same age or in the same educational or vocational situation as the persons for whom the test is recommended. (pp. 36-37)

Therefore, the appropriateness of this sample for a study of the construct validity of the SMI can best be argued on the grounds that it is designed to be used for the purpose of showing the continual growth process in spiritual maturity. This sample allows for the clear testing of the instrument's purpose.

The nature of this sample dictates that the results of this study are best generalized to other seminary students and pastors of the same denomination and to seminary students and pastors comparable in doctrinal beliefs. Generalization to different populations should be made with caution.

Formulas described in the Statistical Package for the Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) were used to compute the Multiple Regression Analysis as well as the principle components factor, item analysis with varimax rotation, and confirmatory factor analysis to examine the hypotheses of this study.

Critical values for the Multiple Regression Analysis were designated at the  $p \leq .05$  significance level. Factor loadings with an eigenvalue greater than 1.0% of the variance with the principle components factor analysis and varimax rotation were considered significant for initial consideration.

### Descriptive Statistics

#### Demographic Data

Demographic data for each subject were collected during the procedure of this study. The demographic information is given here in order to provide a better description of the subjects other than Conservative Baptist Pastors and Seminary students.

This information is germane to an understanding of the sample as well as the generalization of the results of this study. Information provided below was collected

during the months of January and February of 1986, along with the completion of the accompanying inventory.

The number of individuals responding from the 400 surveys sent out was 268. The following paragraphs give the demographic information of the sample.

Gender. The sample consisted of 89.9% male and 10.1% female with the mean age being 36.7 years of age.

Marital Status. Married students composed 86.2% of the sample whereas 13.1% were single, .4% separated, and .4% divorced.

Ethnic Background. The ethnic composition consisted of 94.4% anglo, 2.6% black, .4% hispanic, 2.2% oriental, and .4% other.

Education. The specific categories of Bible College Education, Seminary education, and other (i.e seminars, etc.) were computed by combining the number of quarter and semester hours each subject had accumulated in each category. The mean for Bible College education was 40.2 hours, for Seminary education 63.9 hours, and 5.2 hours for the category of Other.

Years of Pastoral Experience. The mean for this category was 6.8 years.

SWB and SMI Scales

Mean scores and standard deviations for each variable were computed for the entire sample. Tables 1 and 2 give the descriptive data for the Spiritual Maturity Index (SMI) and the Spiritual Well-being Scale (SWB) respectively.

Table 1Means and Standard Deviations of the SWB Scales

| Variables | Mean   | S.D.  | Upper Limit |
|-----------|--------|-------|-------------|
| SWB       | 104.79 | 11.94 | 120         |
| RWB       | 53.66  | 6.00  | 60          |
| EWB       | 51.05  | 6.83  | 60          |

Note. N=268

Table 2Mean and Standard Deviation of the SMI

| Variable | Mean   | S.D.  | Upper Limit |
|----------|--------|-------|-------------|
| SMI      | 144.36 | 13.74 | 175         |

Note. N=268

Correlational Data

Table 3 shows the Pearson's correlation of each of the demographic variables to the Spiritual Maturity Index. It should be noted that the category of Gender had a statistically significant relationship to Spiritual Maturity and Spiritual Well-being. Other variables which correlated significantly with Spiritual Maturity Index were the categories of Age, Seminary Enrollment, and Years of Experience.

Table 3Correlational Relationships of Demographic Data to SMI


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| <u>Correlations:</u> | <u>SWB</u> | <u>SMI</u> |
|----------------------|------------|------------|
| AGE                  | .0521      | .1503*     |
| SEX                  | -.1597*    | -.1915**   |
| MARITAL STATUS       | .0985      | .0771      |
| ETHNIC               | .0608      | .0142      |
| EDUCATION            | .0254      | .0203      |
| BIBLE COLLEGE        | .1298      | .0615      |
| SEMINARY EDUCATION   | .0718      | .0019      |
| OTHER (SEMINARS)     | .0281      | .0050      |
| SEMINARY ENROLLMENT  | .1117      | .2180**    |
| YEARS OF EXPERIENCE  | .0928      | .1865*     |

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Note. N=268 1-tailed significance: \* -.01 \*\* -.001

Table 3 also shows the statistically significant Pearsonian correlations between the demographic variables and the Spiritual Maturity Index. The categories of Gender, Age, Seminary Enrollment, and Years of Experience were those key variables.

Table 4 shows the Pearsonian correlations between the SWB scale as well as its subscales (RWB and EWB) to the SMI.

Table 4  
Pearsonian Correlations Between the SWB and its  
Subscales and the SMI

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| Correlations: | SMI     |
|---------------|---------|
| RWB           | .6963** |
| EWB           | .5835** |
| SWB           | .6810** |

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Note. N=268    1-tailed significance    \* -.01    \*\* -.001

### Hypotheses

#### Hypothesis 1

Hypothesis 1 postulated that the SMI would show a significant relationship between spiritual maturity (as

indicated by the SMI score) and the accumulation of religious education units with ministry experience being controlled. The results of the multiple regression analysis showed that there was not any significant relationship between religious education and spiritual maturity. The relationship between the variable of religious education and spiritual maturity, as indicated by the SMI score was  $R(268) = .041$  ( $p \geq .494$ ).

### Hypothesis 2

Hypothesis 2 postulated that the SMI would show a significant relationship between ministry experience and spiritual maturity (as indicated by the SMI score) with religious education units being controlled. The results of the multiple regression analysis revealed that years of ministerial experience had a significant positive relationship with spiritual maturity as indicated by the SMI score. The relationship between spiritual maturity and years of experience was  $R(268) = .186$  ( $p \geq .002$ ). Although this relationship is statistically significant, it appears to be of no practical value.

### Hypothesis 3

Hypothesis 3 stated that an item factor analysis on the SWB and SMI scales combined would show the distinct clustering of variables on factors that would be unique



to the constructs of each scale. A principle components factor analysis produced 13 factors with an eigenvalue greater than 1.0 (see Table 5). An eigenvalue of greater than or equal to 1% of the variance (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) is used as a mathematical criterion to define a factor. This means that factors which account for 1% of the variance are included. Factors with a variance less than 1% are no better than a single variable or item, since each variable has a variance of 1. These 13 factors explained a cumulative total of 62.5% of the variance. The first factor accounted for 24.8% of the total variance; none of the remaining factors accounted for more than 6% of the total variance. When the factors were rotated to a varimax solution, the scales loaded as presented in Table 5.

Upon further examination of the 13 factors by use of a Scree plot, it was found that there was really only one major factor with a minor possibility of a second. Please refer to Figure 1.

Gorsuch (1982) states that the use of a Scree test or plot is indicated when the battery of variables is measuring a limited number of factors well and a larger number of trivial, specific, and error factors much less well. Therefore, the predominant factors account for

Table 5Varimax Factor Analysis of the SMI and the SWB Scales


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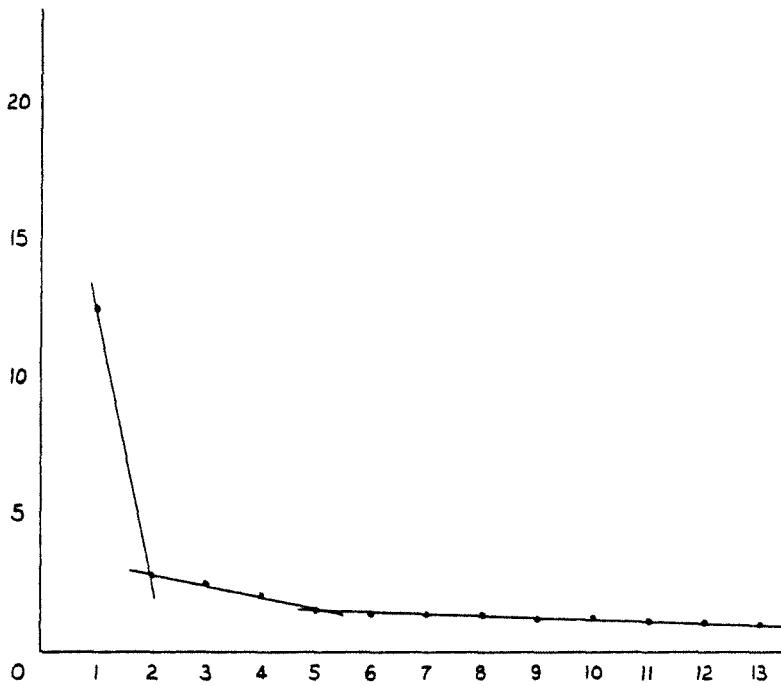
| Factor | Eigenvalue | Percent of<br>Variance | Cumulative<br>Per. |
|--------|------------|------------------------|--------------------|
| <hr/>  |            |                        |                    |
| 1      | 12.38      | 24.8                   | 24.8               |
| 2      | 2.80       | 5.6                    | 30.4               |
| 3      | 2.46       | 4.9                    | 35.3               |
| 4      | 2.09       | 4.2                    | 39.5               |
| 5      | 1.58       | 3.2                    | 42.7               |
| 6      | 1.51       | 3.0                    | 45.7               |
| 7      | 1.39       | 2.8                    | 48.5               |
| 8      | 1.36       | 2.7                    | 51.2               |
| 9      | 1.20       | 2.4                    | 53.6               |
| 10     | 1.18       | 2.4                    | 56.0               |
| 11     | 1.12       | 2.3                    | 58.3               |
| 12     | 1.08       | 2.2                    | 60.4               |
| 13     | 1.03       | 2.1                    | 62.5               |

---

Note. N=268

Figure 1

Scree Plot of First Run Factor Analysis



most of the variance and are large, whereas the other factors are quite numerous but small. Because the principal factor solution extracts factors by size, the substantive factors will be extracted first and the smaller trivial factors will be removed later. Because the smaller factors are so numerous and are taken out in order of size, it would be expected that plotting them on a graph would result in a straight line downward. The dominant factors should not fall on this line because some of them will be much more dominant than others and they will be stronger than the trivial factors.

Because the Scree Plot of Figure 1 suggested there might be five to six factors, but most likely only one, two confirmatory factor analyses were run with a forced solution of six factors, as well as a forced solution of two factors.

Tables 6 and 7 show the results of those two additional runs of the data. The results of the forced factor solution of six factors and of two factors indicate, as did the first factor analysis, that there is one item that accounts for an inordinate amount of the variance as well as indicating one general factor being measured when the SWB and the SMI scales are combined.

Table 6

Confirmatory Factor Analysis of the SMI and SWB Combined  
in a Forced Six-Factor Structure

| Factor | Eigenvalue | Percent of<br>Variance | Cumulative<br>Per. |
|--------|------------|------------------------|--------------------|
| 1      | 11.7       | 23.6                   | 23.6               |
| 2      | 2.2        | 4.5                    | 28.0               |
| 3      | 1.9        | 3.9                    | 31.9               |
| 4      | 1.4        | 2.9                    | 34.8               |
| 5      | 0.97       | 2.0                    | 36.7               |
| 6      | 0.85       | 1.7                    | 38.5               |

Note. N=268

Figure 2

Scree Plot of the Forced Six-Factor Structure

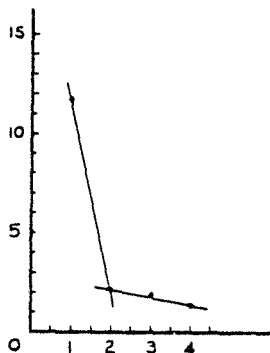


Table 7

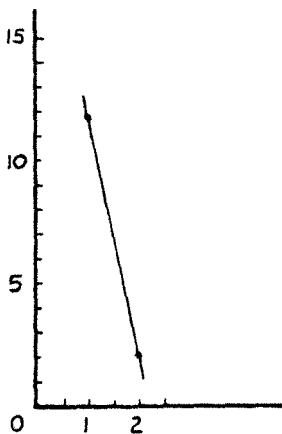
Confirmatory Factor Analysis of the SMI and SWB combined  
in a Forced Two-Factor Structure

| Factor | Eigenvalue | Percent of<br>Variance | Cumulative<br>Per. |
|--------|------------|------------------------|--------------------|
| 1      | 11.7       | 23.4                   | 23.4               |
| 2      | 2.1        | 4.3                    | 27.7               |

Note. N=268

Figure 3

Scree Plot of the Forced Two-Factor Structure



Please refer to Table 8 for the items loading on the factors of the forced factor solution of two factors. This finding calls into question the measurement of the distinct constructs of "spiritual maturity" from that of "spiritual well-being" in this sample. Please refer to Figures 2 and 3 for the confirmatory factor analysis of the forced six-factor and two-factor structure.

Table 8

Items Loading on the Two Factors of the Two-Factor  
Forced Solution

(Items 1-20 are SWB; Items 21-50 are SMI)

- 
- |         |  |
|---------|--|
| Item 3* | "I seldom find myself thinking about God and spiritual matters during each day."   |
| Item 5* | "The encouragement and example of other Christians is essential for me to keep on living for Jesus."                         |
| Item 18 | "I feel like God has let me down in some of the things that have happened to me."  |
| Item 12 | "My identity (who I am) is determined more by my personal or professional situation than by my relationship with God."       |
| Item 9  | "I feel that a Christian needs to take care of his/her own needs first in order to help others."                             |
| Item 19 | "I have chosen to forego various gains when they have detracted from my spiritual witness or violated spiritual principles." |
| Item 2  | "The way I do things from day to day is often by my relationship with God."  |



Table 8 continued

- 
- |          |   |
|----------|---|
| Item 20  | "Giving myself to God regardless of what happens to me is my highest calling in life."                    |
| Item 11  | "I find that following Christ's example of sacrificial love is one of my most important goals."           |
| Item 30  | "On the whole, my relationship with God is alive and growing."  |
| Item 4   | "Even if the people around me opposed my Christian convictions, I would still hold fast to them."         |
| Item 38  | "I feel very fulfilled and satisfied with life."  |
| Item 17  | "I believe that God has used the most 'negative' of difficult times in my life to draw me closer to him." |
| Item 50* | "I believe there is some real purpose for my life."   |
| Item 48* | "Life doesn't have much meaning."   |
| Item 47  | "I feel most fulfilled when I am in close communion with God."  |
| Item 8   | "People that don't believe the way that I do about spiritual truths are hard-hearted."                    |

Table 8 continued

---

- |         |  |
|---------|--|
| Item 15 | "I don't seem to be able to live in such a way that my life is characterized by the fruits of the spirit." |
| Item 7  | "I am convinced that the way I believe spiritually is the right way."                                      |
| Item 10 | "My faith doesn't seem to give me a definite purpose in my daily life."                                    |
| Item 14 | "I feel that identifying and using my spiritual gifts is not really important."                            |
| Item 43 | "I don't have a personally satisfying relationship with God."  |
| Item 1  | "My faith doesn't primarily depend on the formal church for its vitality."                                 |
| Item 44 | "I feel good about my future."   |
| Item 13 | "Walking closely with God is the greatest joy in my life."   |
| Item 6  | "I feel like I need to be open to consider new insights and truths about my faith."                        |
| Item 42 | "I don't enjoy much about life."   |
| Item 33 | "I believe that God loves me and cares about me."  |

Table 8 continued

---

|         |  |
|---------|--|
| Item 35 | "I believe that God is impersonal and not<br>interested in my daily situations." |
| Item 49 | "My relation with God contributes to my sense<br>of well-being."                 |
| Item 46 | "I feel that life is full of conflict and<br>unhappiness."                       |

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Note. \* Second Factor Items

## CHAPTER IV

### DISCUSSION

This chapter evaluates and interprets the results of the previous chapter. In addition, this chapter will critique the process of construction of the Spiritual Maturity Index (SMI). The chapter includes the following sections: sample, hypotheses, implications, suggestions for further research, and conclusions.

#### Scores of the Sample on the SWB and SMI Scales

The mean score of the sample for the SWB was 104.79 out of a maximum score of 120. The subscales also reflect high scores with a mean of 53.60 (RWB) and 51.05 (EWB) out of a maximum score of 60 in each scale (See Tables 2 and 3). The sample reflects a strong sense of religious and existential well-being, and consequently, a strong sense of "spiritual well-being" as measured by the SWB.

The high scores for the seminary students on the SWB scale is not unique to this population. Parker (1984), using the SWB scale with a similar population of seminary students, found the participants of his study also

yielding scores of 56.19, 53.58, and 109.99 for RWB, EWB, and SWB respectively. These findings are also consistent with other studies using the SWB scale with similar and dissimilar populations. Bufford, Bentley, Newenhouse, and Papania (1986) did a study to assess whether there were differences among groups on overall SWB and the two subscales, Religious Well-being (RWB), and Existential Well-being (EWB). The comparisons of the groups centered around eight clinical studies involving 15 samples which had been conducted by doctoral psychology students at Western Conservative Baptist Seminary using the SWB. The samples ranged from nonreligious sociopathic convicts to seminarians. The comparisons of the groups indicated that Unitarians were lower than all other groups except for nonreligious sociopathic convicts on SWB and RWB. Nonreligious sociopathic convicts were lower than all other samples on EWB. The results of the comparisons of the groups showed that the SWB is sensitive to predicted group differences in well-being, thus supporting its validity and reliability.

The mean score for the Spiritual Maturity Index was 144.36 out of a maximum score of 175.00. There are no subscales for the SMI. The sample reflects a very "spiritually mature" group as measured by the SMI. It

should also be noted that the SWB scale correlated at .68 with the SMI. The subscales also reflect high correlations with a .69 for the RWB and a .58 for the EWB. This indicates that for this sample, the SWB and SMI scales share nearly 50% of common variance, almost as high as that shared by Existential Well-being (EWB) and Religious Well-being (RWB), the SWB subscales.

Average scores of the sample from the questionnaire used in this study would reflect a very spiritually mature group which claim to be experiencing a high sense of well-being and commitment to Biblical values.

### Hypotheses

Sax (1980) states that one of the key steps involved in establishing construct validity is making a clear distinction between the hypothesized construct and other constructs that appear similar. Anastasi (1982) agrees by stating that one of the principle means of evaluating the construct validity of a new inventory is by correlating the new inventory with theoretically related and established tests to establish divergent validity.

The hypotheses in this study relate to the predicted  $p \leq .05$  relationships between Religious Education and Years of Experience on spiritual maturity,

according to the SMI scores, as well as the relationship between the SMI and the Spiritual Well-being scale.

Due to the fact that this is the first major examination of the construct validity of the SMI at the item level and the lack of theoretically related inventories, predicted relationships were hypothesized on a rational basis.

The SWB, which taps into the religious domain, was employed as a marker test to establish divergent validity. There is sufficient psychometric credibility for this test to justify using it for the purpose of establishing divergent validity.

Hypotheses 1 and 2 relate to the variables of ones knowledge of God and the experiencing of that knowledge which seem most influential in the development of spiritual maturity in the growth process, as established in the Review of Literature section. The relationship of the variables, knowledge of God and the experiencing of that knowledge, would be indicated by the participant's scores on the SMI. The predicted relationship, made in Hypothesis 3, between the SWB scale and the SMI was made for the examination of a type of construct validity known as divergent validity.

### Hypothesis 1

Hypothesis 1 was postulated on the basis of the rational assumption, based on Ellison's theory, that spiritual maturity, as measured by the SMI, would be directly influenced by religious education. As demonstrated in the results, this hypothesis received no such support.

### Hypothesis 2

Hypothesis 2 was also postulated on the rational assumption that spiritual maturity as measured by the SMI would be significantly influenced by years of experience in the ministry. The results for this hypothesis were statistically significant but of little practical value.

The results of these correlations cast considerable doubt on the validity of the SMI as a measure of spiritual maturity with this sample.

### Hypothesis 3

Hypothesis 3 related to the factorial composition of the SMI at the item level. Anastasi (1982) suggests that factor analysis of a test at the item level, scale level, or with a battery of other tests contributes to the "factorial validity" or to an understanding of the factorial composition of the test. Sax (1980) also stresses that a distinction must be made between the



hypothesized construct and other constructs which may appear similar. This is done to establish a type of construct validity called divergent validity. A factor analysis at the item level such as the one reported in the results of this study provides an empirical explanation of variance attributable to each item in this particular sample as well as clarifying the divergent validity of the scale.

The SMI, by definition of the traits measured-- design, purpose, scoring format, and interpretive methodology--attempts to quantify the distinct construct of spiritual maturity. The 13 factors produced by a principle components factor analysis with eigenvalues above 1.0 (Table 5) in the results accounted for 62.5% of the total variance. Since the rotation was Varimax (the first factor explains the largest amount, etc.) and orthogonal, the communalities of the factors and the proportion of the total amount of variance of each factor did not change with the rotation of the axes.

Yet, upon doing a Scree plot (Figure 1), it was discovered that there was really only one factor that was being measured by the combination of the two scales. Two subsequent factor analyses, one with a forced 6-Factor structure and one with a forced 2-Factor structure,

confirm that there was indeed one major factor being measured (Figures 2 and 3). It is also important to note that this one major factor accounts for less than 25% of the variance.

The results of the factor analyses on the combined item pool show that the SMI and SWB items did not separate cleanly as expected if they were measuring different constructs. Also, the fact that item one ("My faith doesn't depend on the formal church for its vitality.") accounted for an overwhelming amount of variance (24.8%) in relation to the other items raises doubt about the necessity of some of the other items and suggests item overlap between the two scales.

The high correlations between SMI and SWB and its subscales indicate that there is enough similarity in the items of the two scales so that the two constructs (spiritual maturity vs spiritual well-being) are indistinct. Undoubtedly, this type of item similarity or overlap contributes significantly to the results of the factor analyses of this study. There is no possibility of discriminant scale validity with this type item selection.

Finally, it should be noted that by using such a restricted/homogenous group the linear progression looked for

in the growth process of spiritual maturity may have been too narrow for the SMI to delineate. All of the participants in this study were either studying for ministerial service, already involved, or both. The high involvement of the participants in spiritually oriented studies and experiences may have, in part, accounted for the high scores on the SMI and thus obscured the clear linear progression sought for in the growth process of spiritual maturity.

Another possible reason the SMI was not able to clearly delineate the linear progression of spiritual maturity in the growth process could be due to the social desirability of the participants. The participants desire to be perceived as spiritually mature may have affected the way they answered the questions asked on the SMI. Since ministerial service is what the participants were studying for, participating in, or both, there would possibly be a need to feel "spiritually mature" in order to fulfill that desire to be adequate and qualified to serve.

In summary, the results of the correlational and item level factor analytic data cast doubt on the construct validity of the SMI with this sample. The

implications of these results are discussed in the next section.

### Implications

The results of this study indicate that there is a need to reconsider the present value of administering the SMI, especially to the population used in this sample. It is also advisable to continue to use the inventory in an experimental capacity so that further studies on the construct validity of the test can be performed and the problems suggested by this study are clarified.

Allen and Yen (1979) state that:

Establishing construct validity is an ongoing process. Based on current theory regarding the trait being measured, the test developer makes predictions about how the test scores should behave in various situations. These predictions are then tested. If the predictions are supported by the data, construct validity is enhanced. If the predictions are not supported by the data, then three alternatives can be drawn: (1) the experiment was flawed, (2) the theory was wrong and should be revised, (3) the test does not measure the trait.

(p. 108)

At the present time, assuming that the experiment was not flawed, it appears that either Ellison's theory concerning spiritual maturity needs revision or that the test does not measure the construct of spiritual maturity, at least with this population. It appears, from the results of this study, that possibly both a revision of his theory and the test might be considered.

The recommendation that the SMI be used only for research purposes is made on the basis of the absence of a sufficient number of studies, especially on other populations. One particular study by Bufford (1984) used the SMI and SWB scale on a heterogeneous sample. The results of that study showed a high correlation between the SMI and the SWB, raising a question as to whether the SMI was measuring a different construct than the SWB scale. Validity is not proved or disproved on the basis of one or two studies. At the present time, more studies on the validity of the SMI are necessary.

It should also be noted that the findings of this study seem to confirm Gorsuch's (1984) belief that there may be one general religious dimension that can be subdivided into smaller dimensions. Gorsuch suggests that in our culture it appears that religious people are distinguished from nonreligious by a general dimension.

This dimension reflects an intrinsic commitment to a traditional, Gospel-oriented interpretation of the Christian faith (which is not, however, identical to fundamentalism). Gorsuch then goes on to explain that the general factor could be a second-order general factor which could be broken down into specific factors to distinguish differences among Christians. The general factor which resulted from the factor analysis run on the combined SMI and SWB scales in this particular study seem to fit Gorsuch's view of one large general factor which would distinguish a religious person from a nonreligious person.

#### Suggestions for Further Research

Although Ellison has tried to tap into the key components which account for growth and spiritual maturity in an individual's walk with God, it appears that the SMI, as it is presently comprised, does not accurately measure the growth process of those key components in this population. The continuing development of a more reliable and valid SMI is an important goal.

Further research should be considered both in the construction and the validation of the SMI. The results

of this study suggest that a reexamination of what makes up spiritual maturity be pursued.

It also appears that an item-level analysis is particularly important. This should be directed towards the reexamination of item-to-scale fit (rational and empirical). Therefore, in order to do further validation studies it is recommended that items in the item pool be revised and a broader sample from the religious community be used rather than a very restricted/homogenous group.

#### Conclusion

The purpose of this study was to examine the construct validity of the SMI on a sample of Conservative Baptist pastors and seminarians. The results indicate that the construct validity of the SMI was questionable when used on this sample.

Correlational relationships between the subscales of the SWB scale and the SMI were very high. These high correlations suggested the possibility that the scales may be measuring the same construct.

An item level factor analysis of the combination of the SMI and the SWB scale suggested the possibility of one "general factor" being measured rather than the two separate constructs of spiritual well-being and spiritual

maturity. Scree plots and two confirmatory factor analyses seemed to verify the initial findings.

As a result of this study and the lack of others concerning the construct validity of the SMI, it is recommended that the present administration of the inventory be limited to research studies. These studies should examine the concept of spiritual maturity used by Ellison in the designing of the scale, revise the item pool, and broaden the sample from a restricted/homogenous group to a more heterogeneous group.



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APPENDIX A  
PERSONAL DATA SHEET AND INSTRUMENT

PERSONAL DATA SHEET

Please do not identify yourself by name. ID\_\_\_\_\_

1. AGE\_\_\_\_\_

2. SEX: M\_\_\_\_\_ F\_\_\_\_\_

3. CURRENT MARITAL STATUS:

Single\_\_\_\_\_

Married\_\_\_\_\_

Separated\_\_\_\_\_

Widowed\_\_\_\_\_

Divorced\_\_\_\_\_

Living Together\_\_\_\_\_

4. ETHNIC BACKGROUND:

Anglo (white)\_\_\_\_\_

Black\_\_\_\_\_

Indian\_\_\_\_\_

Hispanic\_\_\_\_\_

Oriental\_\_\_\_\_

Other\_\_\_\_\_

5. EDUCATION: Indicate the highest level completed.

\_\_\_\_\_ Grades 1-12 (specify highest grade)

\_\_\_\_\_ College (specify number of years)

\_\_\_\_\_ Post college (specify number of years)



6. How many hours of formal religious education have you completed ? (Indicate "0" if none)

a. Bible School/Bible College

Number of hours\_\_\_\_\_Quarter  
\_\_\_\_\_Semester

b. Seminary

Number of hours\_\_\_\_\_Quarter  
\_\_\_\_\_Semester

c. Other (specify)\_\_\_\_\_

Number of hours\_\_\_\_\_Quarter  
\_\_\_\_\_Semester

7. Are you currently enrolled in seminary?

Yes \_\_\_\_\_

No \_\_\_\_\_

8. How many years of pastoral experience have you had?  
(If None, indicate with an "0")

\_\_\_\_\_Years

**INSTRUCTIONS:** Please circle the choice that best indicates the extent of your agreement or disagreement with each of the following statements. Please note that there is no "right" response; your response should honestly describe your personal experience. All responses will be confidential; please do not put your name on the questionnaire.

SA = strongly agree  
MA = moderately agree  
A = agree

D = disagree  
MD = moderately disagree  
SD = strongly disagree

1. My faith doesn't primarily depend on the formal church for its vitality. SA MA A D MD SD
2. The way I do things from day to day is often affected by my relationship with God. SA MA A D MD SD
3. I seldom find myself thinking about God and spiritual matters during each day. SA MA A D MD SD
4. Even if the people around me opposed my Christian convictions, I would still hold fast to them. SA MA A D MD SD
5. The encouragement and example of other Christians is essential for me to keep on living for Jesus. SA MA A D MD SD
6. I feel like I need to be open to consider new insights and truths about my faith. SA MA A D MD SD
7. I am convinced that the way I believe spiritually is the right way. SA MA A D MD SD
8. People that don't believe the way that do about spiritual truths are hard-hearted. SA MA A D MD SD
9. I feel that a Christian needs to take care of his/her own needs first in order to help others. SA MA A D MD SD
10. My faith doesn't seem to give me a definite purpose in my daily life. SA MA A D MD SD

- |   |    |    |   |   |    |    |
|---|----|----|---|---|----|----|
| 11. I find that following Christ's example of sacrificial love is one of my most important goals.                             | SA | MA | A | D | MD | SD |
| 12. My identify (who I am) is determined more by my personal or professional situation than by my relationship with God.      | SA | MA | A | D | MD | SD |
| 13. Walking closely with God is the greatest joy in my life.  | SA | MA | A | D | MD | SD |
| 14. I feel that identifying and using my spiritual gifts is not really important.   | SA | MA | A | D | MD | SD |
| 15. I don't seem to be able to live in such a way that my life is characterized by the fruits of the Spirit.                  | SA | MA | A | D | MD | SD |
| 16. When my life is done, I feel like only those things that I've done as part of following Christ will matter.               | SA | MA | A | D | MD | SD |
| 17. I believe that God has used the most "negative" of difficult times in my life to draw me closer to Him.                   | SA | MA | A | D | MD | SD |
| 18. I feel like God has let me down in some of the things that have happened to me.   | SA | MA | A | D | MD | SD |
| 19. I have chosen to forgo various gains when they have detracted from my spiritual witness or violated spiritual principles. | SA | MA | A | D | MD | SD |
| 20. Giving myself to God regardless of what happens to me is my highest calling in life.                                      | SA | MA | A | D | MD | SD |
| 21. I don't regularly study the Bible in depth on my own.   | SA | MA | A | D | MD | SD |
| 22. I actively look for opportunities to share my faith with non-Christians.  | SA | MA | A | D | MD | SD |
| 23. My relationships with others are guided by my desire to express the love of Christ.                                       | SA | MA | A | D | MD | SD |

- |   |    |    |   |   |    |    |
|---|----|----|---|---|----|----|
| 24. I don't regularly have times of deep communion with God in personal (private) prayer.           | SA | MA | A | D | MD | SD |
| 25. More than anything else in life I want to know God intimately and to serve Him.                 | SA | MA | A | D | MD | SD |
| 26. Worship and fellowship with other believers is a significant part of my Christian life.         | SA | MA | A | D | MD | SD |
| 27. It seems like I am experiencing more of God's presence in my daily life than I have previously. | SA | MA | A | D | MD | SD |
| 28. I feel like I am becoming more Christ-like.   | SA | MA | A | D | MD | SD |
| 29. I seem to have less consistent victories over temptation that I used to.                        | SA | MA | A | D | MD | SD |
| 30. On the whole, my relationship with God is alive and growing.                                    | SA | MA | A | D | MD | SD |
| 31. I don't find much satisfaction in private prayer with God.                                      | SA | MA | A | D | MD | SD |
| 32. I don't know who I am, where I came from, or where I'm going.                                   | SA | MA | A | D | MD | SD |
| 33. I believe that God loves me and cares about me.   | SA | MA | A | D | MD | SD |
| 34. I feel that life is a positive experience.  | SA | MA | A | D | MD | SD |
| 35. I believe that God is impersonal and not interested in my daily situations.                     | SA | MA | A | D | MD | SD |
| 36. I feel unsettled about my future.   | SA | MA | A | D | MD | SD |
| 37. I have a personally meaningful relationship with God.   | SA | MA | A | D | MD | SD |
| 38. I feel very fulfilled and satisfied with life.  | SA | MA | A | D | MD | SD |

|  |    |    |   |   |    |    |
|--|----|----|---|---|----|----|
| 39. I don't get much personal strength and support from my God.            | SA | MA | A | D | MD | SD |
| 40. I feel a sense of well-being about the direction my life is headed in. | SA | MA | A | D | MD | SD |
| 41. I believe that God is concerned about my problems.                     | SA | MA | A | D | MD | SD |
| 42. I don't enjoy much about life.   | SA | MA | A | D | MD | SD |
| 43. I don't have a personally satisfying relationship with God.            | SA | MA | A | D | MD | SD |
| 44. I feel good about my future.   | SA | MA | A | D | MD | SD |
| 45. My relationship with God helps me not to feel lonely.                  | SA | MA | A | D | MD | SD |
| 46. I feel that life is full of conflict and unhappiness.                  | SA | MA | A | D | MD | SD |
| 47. I feel most fulfilled when I'm in close communion with God.            | SA | MA | A | D | MD | SD |
| 48. Life doesn't have much meaning.  | SA | MA | A | D | MD | SD |
| 49. My relation with God contributes to my sense of well-being.            | SA | MA | A | D | MD | SD |
| 50. I believe there is some real purpose for my life.                      | SA | MA | A | D | MD | SD |

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Note. Items 1-20 Spiritual Well-Being Scale  
Items 21-50 Spiritual Maturity Index

APPENDIX B

LETTERS OF INTRODUCTION



January 13, 1986

Dear Student,

I would like to take the opportunity to ask you to participate in a research project concerning spiritual growth and maturity. This study is being pursued by Rod Cooper, who is presently working on his doctorate in clinical psychology at Western Conservative Baptist Seminary in Portland, Oregon. Rod is concerned, as I am, about the characteristic of spiritual growth and maturity among those who attend seminary and those who have graduated from seminary.

This study will examine test data from a questionnaire concerning Christian development and growth. You can be a significant person in helping to understand the phenomena of spiritual growth and maturity in the believer's life. Hence, we really need your help and participation.

It would be appreciated if you would complete the personal data sheet and questionnaire, which takes about 45 minutes to an hour, at one sitting. Once you have completed the personal data sheet and questionnaire, please place them in the stamped return envelope provided and return them to Rod in Portland, Oregon.

It is important for you to understand that your material will be confidential. Hence, a number will be assigned to your test packet and all of your results. Thereafter, no testing data will be identified by any personal name. Rather, it will only identified by number.

At the end of the study, sometime during the Fall of 1986, Rod will make available a copy of the results to Denver Seminary. You may receive a summary of results by writing "copy of results requested" on the back of the return envelope, and printing your name and address below it. Please do not put this information on the questionnaire itself.

Thank you for your assistance.

Yours in Christ,

Haddon W. Robinson  
President

HWR:avt



January, 1986

Dear Pastor:

I would like to take this opportunity to ask you to participate in a research project concerning spiritual growth and maturity. This study is being pursued by Rod Cooper, who is presently working on his doctorate in clinical psychology at Western Baptist Seminary in Portland. Rod is concerned, as I am, about the characteristic of spiritual growth and maturity among those who attend seminary and those who have graduated.

This study will examine test data from a questionnaire concerning Christian development and growth. You can be a significant person in helping to understand the phenomena of spiritual growth and maturity in the believer's life. We really need your help and participation.

It would be appreciated if you would complete the personal data sheet and questionnaire, which takes about 45 minutes to an hour, at one sitting. Once you have completed them, please return them to Rod in Portland in the stamped return envelope provided for you.

It is important for you to understand that your material will be confidential. A number will be assigned to your test packet and all of your results. Thereafter, no testing data will be identified by any personal name; rather it will only be identified by number.

At the conclusion of the study, sometime during the fall of 1986, Rod will make available a copy of the results to the Northwest Conservative Baptist Association. You may receive a summary of the results by writing "Copy of results requested" on the back of the return envelope (include your name and address below it.) Please do not put this information on the questionnaire itself.

Thank you for your assistance.

Rejoicing,

*Larry McCracken*  
Larry D. McCracken, Director

LDH:sk





January 13, 1986

Western Seminary

Dear Student:

I would like to take the opportunity to ask you to participate in a research project concerning spiritual growth and maturity. This study is being pursued by Rod Cooper, who is presently working on his doctorate in clinical psychology at Western Conservative Baptist Seminary in Portland, Oregon. Rod is concerned, as I am, about the characteristics of spiritual growth and maturity among those who attend seminary and those who have graduated from seminary.

This study will examine test data from a questionnaire that has been developed concerning Christian development and growth. The most important factor of which we would like to assure you is that your participation in the study is confidential. You can be a significant person in helping to understand the phenomena of spiritual growth and maturity in the believer's life. Hence, we really need your help and participation.

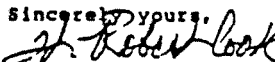
It would be appreciated if you would complete the personal data sheet and questionnaire, which take about 45 minutes to an hour, at one sitting. Once you have completed the personal data sheet and questionnaire please place them in the stamped return envelope provided and return them to Rod in Portland, Oregon.

It is important for you to understand that your material will be confidential. Hence, a number will be assigned to your test packet and all of your results. Thereafter, no testing data will be identified by any personal name. Rather, it will only be identified by number.

At the end of the study, sometime during the fall of 1986, Rod will make available a copy of the results to Western Seminary. You may receive a summary of results by writing "copy of results requested" on the back of the return envelope, and printing your name and address below it. Please do not put this information on the questionnaire itself.

Rod would be most happy to answer any questions you might have. Please write or call. The telephone number is (503) 684-3259.

Thank you for your assistance.

Sincerely yours,  
  
W. Robert Cook  
Academic Vice-President  
and Dean of Faculty

MRC:ta

APPENDIX C  
INSTRUCTIONS

SURVEY COVER SHEET

Dear Participant:

You are being asked to take part in a research study by responding to a survey of Christian attitudes, feelings, and experiences. The results of this study can be beneficial to Christian educators and pastors in focusing needs for ministry.

It is very important that you respond to the items as honestly as you can. Sometimes individuals are tempted to respond in a way they would like others to see them. Others may select certain answers because they feel they are supposed to respond in a certain way. Please try to avoid these common tendencies. Only your true feelings and honest answers can be beneficial.

Please do not write your name on the survey. All information is strictly confidential and anonymous, so be sure to answer all of the questions.

Thank you for your cooperation.

APPENDIX D  
FOLLOW-UP LETTERS

POSTCARD

Dear Christian Friend:

Recently, you should have received a questionnaire on Christian attitudes and experiences. Many have been returned and if yours is one, I extend a warm "thank you." If not, please consider completing this now.

Your effort for 45 minutes will significantly contribute to the focusing of needs for ministering to evangelical Christians.

Please take a few minutes to do this today. I would like your survey to be included without your name. In appreciation for your participation, I would like to make available the results if you desire this. Just write "copy of results requested" on the back of the return envelope previously sent with the questionnaire. Print your name and address below "copy of results requested". Please do not put this information on the questionnaire itself.

If you strongly wish not to participate, clip the card, check the box, print your name and return it. This way I can account for all of the surveys mailed. Thank you for your extra effort and supportive cooperation.

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\_\_\_\_\_ I do not wish to participate

\_\_\_\_\_ I have returned my survey but I do not wish to know the results.

\_\_\_\_\_ I have returned my survey and I am interested in receiving the results in several months.

FULL NAME \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

FINAL FOLLOW-UP

Date mailed

Address

About three weeks ago I wrote to you seeking your input on a questionnaire that has been developed concerning Christian development and growth. As of today I have not received your completed questionnaire.

I am writing to you again because of the significance each questionnaire has to the usefulness of this study. Your name was drawn through a scientific sampling process in which only a select few were asked to participate in this study. In order for the results of this study to be truly representative of those involved, it is essential that each person in the sample return their questionnaire.

In the event that your questionnaire has been misplaced, a replacement is enclosed.

Your cooperation is greatly appreciated.

Cordially,

Rod Cooper  
Project director

APPENDIX E  
RAW DATA TABLES

RAW DATA

QUESTIONNAIRE

Key of Raw Data By Columns

- 1 = Subject
- 2 = Age
- 3 = Sex
- 4 = Current Marital Status
- 5 = Ethnic Background
- 6 = Years of General Education
- 7 = Overall Hours of Bible College Education
- 8 = Overall Hours of Seminary Education
- 9 = Overall Hours of Other Types of Religious Education,  
i.e. Seminars
- 10 = Current Enrollment in Seminary
- 11 = Years of Pastoral Experience
- 12 = Existential Well-being Score
- 13 = Religious Well-being Score
- 14 = Spiritual Well-being Score
- 15 = Spiritual Maturity Score



# Spiritual Maturity - 109

|     |    |   |   |   |    |     |     |     |   |    |    |    |     |     |
|-----|----|---|---|---|----|-----|-----|-----|---|----|----|----|-----|-----|
| 000 | 44 | 1 | 2 | 1 | 23 | 000 | 000 | 000 | 2 | 15 | 46 | 45 | 091 | 137 |
| 001 | 25 | 1 | 2 | 1 | 17 | 120 | 060 | 000 | 1 | 00 | 57 | 57 | 114 | 148 |
| 002 | 31 | 1 | 2 | 1 | 19 | 074 | 110 | 000 | 1 | 07 | 55 | 50 | 105 | 129 |
| 004 | 52 | 1 | 2 | 1 | 16 | 000 | 101 | 000 | 1 | 00 | 58 | 60 | 118 | 146 |
| 008 | 28 | 1 | 2 | 1 | 20 | 024 | 068 | 000 | 1 | 00 | 57 | 57 | 114 | 134 |
| 009 | 26 | 1 | 2 | 1 | 17 | 000 | 016 | 003 | 1 | 00 | 56 | 51 | 107 | 134 |
| 011 | 28 | 1 | 2 | 1 | 19 | 034 | 144 | 000 | 1 | 05 | 50 | 43 | 093 | 137 |
| 013 | 47 | 1 | 2 | 1 | 19 | 008 | 160 | 000 | 1 | 00 | 48 | 45 | 113 | 137 |
| 012 | 36 | 2 | 2 | 1 | 15 | 000 | 007 | 000 | 1 | 00 | 46 | 38 | 084 | 128 |
| 015 | 33 | 1 | 2 | 1 | 15 | 016 | 040 | 000 | 1 | 02 | 57 | 56 | 113 | 130 |
| 017 | 26 | 2 | 2 | 1 | 18 | 000 | 096 | 000 | 1 | 00 | 59 | 51 | 110 | 139 |
| 018 | 37 | 2 | 1 | 1 | 19 | 000 | 096 | 000 | 1 | 00 | 43 | 57 | 100 | 121 |
| 020 | 46 | 1 | 2 | 1 | 16 | 135 | 007 | 000 | 1 | 25 | 52 | 46 | 098 | 145 |
| 022 | 27 | 1 | 2 | 1 | 21 | 050 | 136 | 000 | 1 | 01 | 42 | 50 | 092 | 143 |
| 025 | 24 | 1 | 2 | 1 | 18 | 128 | 090 | 000 | 1 | 00 | 52 | 60 | 112 | 148 |
| 030 | 40 | 2 | 2 | 1 | 17 | 000 | 025 | 000 | 1 | 00 | 40 | 41 | 081 | 119 |
| 032 | 40 | 1 | 1 | 1 | 18 | 000 | 095 | 000 | 1 | 00 | 55 | 52 | 107 | 152 |
| 033 | 26 | 1 | 2 | 1 | 17 | 130 | 036 | 000 | 1 | 00 | 53 | 50 | 103 | 143 |
| 036 | 45 | 1 | 2 | 1 | 15 | 015 | 030 | 000 | 1 | 04 | 59 | 55 | 114 | 153 |
| 038 | 29 | 1 | 2 | 1 | 19 | 140 | 085 | 000 | 1 | 00 | 48 | 42 | 090 | 120 |
| 040 | 30 | 2 | 1 | 1 | 18 | 016 | 096 | 000 | 2 | 00 | 45 | 44 | 089 | 131 |
| 041 | 28 | 1 | 2 | 1 | 20 | 000 | 132 | 000 | 1 | 05 | 57 | 50 | 107 | 119 |
| 043 | 30 | 1 | 2 | 1 | 16 | 000 | 009 | 000 | 1 | 02 | 41 | 48 | 089 | 118 |
| 044 | 28 | 1 | 2 | 1 | 16 | 000 | 084 | 000 | 1 | 01 | 59 | 53 | 112 | 151 |
| 045 | 36 | 1 | 2 | 1 | 17 | 000 | 060 | 000 | 1 | 05 | 56 | 59 | 115 | 138 |
| 049 | 54 | 2 | 2 | 1 | 21 | 000 | 096 | 000 | 1 | 00 | 56 | 53 | 109 | 152 |
| 050 | 30 | 1 | 2 | 1 | 17 | 004 | 011 | 000 | 1 | 00 | 53 | 58 | 111 | 137 |
| 051 | 46 | 2 | 1 | 1 | 18 | 000 | 052 | 000 | 1 | 00 | 55 | 46 | 101 | 142 |
| 053 | 29 | 1 | 2 | 1 | 18 | 000 | 120 | 000 | 1 | 00 | 51 | 53 | 104 | 140 |
| 055 | 26 | 2 | 1 | 1 | 20 | 000 | 050 | 000 | 1 | 03 | 36 | 27 | 063 | 109 |
| 054 | 38 | 1 | 2 | 1 | 19 | 000 | 120 | 000 | 1 | 02 | 56 | 49 | 105 | 126 |
| 052 | 39 | 1 | 2 | 1 | 16 | 000 | 012 | 000 | 1 | 00 | 51 | 41 | 092 | 141 |
| 056 | 26 | 1 | 1 | 1 | 20 | 000 | 140 | 000 | 1 | 00 | 57 | 54 | 111 | 144 |
| 058 | 29 | 1 | 2 | 1 | 19 | 000 | 008 | 000 | 1 | 05 | 58 | 60 | 118 | 153 |
| 059 | 29 | 1 | 2 | 1 | 20 | 020 | 125 | 000 | 1 | 01 | 52 | 48 | 100 | 132 |
| 062 | 25 | 2 | 3 | 1 | 16 | 000 | 003 | 000 | 2 | 00 | 53 | 41 | 094 | 129 |
| 064 | 27 | 1 | 2 | 1 | 19 | 096 | 093 | 000 | 1 | 02 | 41 | 42 | 083 | 115 |
| 067 | 27 | 1 | 2 | 1 | 17 | 143 | 056 | 000 | 1 | 01 | 55 | 55 | 110 | 132 |
| 068 | 32 | 1 | 1 | 1 | 19 | 024 | 100 | 000 | 1 | 00 | 40 | 34 | 074 | 125 |
| 073 | 26 | 1 | 1 | 1 | 18 | 000 | 099 | 000 | 1 | 03 | 56 | 50 | 106 | 149 |
| 074 | 32 | 1 | 2 | 1 | 17 | 055 | 050 | 007 | 1 | 04 | 59 | 52 | 111 | 155 |
| 075 | 29 | 1 | 2 | 1 | 17 | 000 | 045 | 000 | 1 | 04 | 52 | 45 | 097 | 135 |
| 076 | 26 | 1 | 1 | 1 | 19 | 000 | 016 | 000 | 1 | 00 | 58 | 42 | 100 | 142 |
| 078 | 42 | 1 | 2 | 1 | 16 | 113 | 012 | 000 | 1 | 03 | 55 | 51 | 106 | 125 |
| 079 | 46 | 2 | 2 | 1 | 17 | 000 | 132 | 000 | 1 | 00 | 56 | 57 | 113 | 133 |
| 080 | 26 | 1 | 1 | 1 | 18 | 000 | 004 | 000 | 1 | 03 | 57 | 54 | 111 | 147 |
| 082 | 30 | 1 | 2 | 2 | 18 | 006 | 002 | 000 | 1 | 00 | 41 | 45 | 086 | 136 |
| 083 | 28 | 1 | 2 | 1 | 18 | 020 | 080 | 000 | 1 | 00 | 50 | 49 | 099 | 127 |

# Spiritual Maturity - 110

|     |    |   |   |   |    |     |     |     |   |    |    |    |     |     |
|-----|----|---|---|---|----|-----|-----|-----|---|----|----|----|-----|-----|
| 084 | 36 | 1 | 2 | 1 | 18 | 053 | 038 | 000 | 1 | 01 | 60 | 53 | 113 | 165 |
| 085 | 34 | 1 | 2 | 1 | 18 | 000 | 069 | 000 | 1 | 00 | 60 | 56 | 116 | 155 |
| 087 | 39 | 1 | 2 | 6 | 15 | 000 | 044 | 000 | 1 | 00 | 60 | 59 | 119 | 164 |
| 088 | 26 | 2 | 2 | 1 | 19 | 124 | 094 | 000 | 1 | 06 | 54 | 50 | 104 | 137 |
| 090 | 30 | 1 | 2 | 1 | 19 | 130 | 132 | 000 | 1 | 02 | 60 | 53 | 113 | 154 |
| 095 | 29 | 1 | 2 | 1 | 17 | 000 | 070 | 000 | 1 | 05 | 58 | 54 | 112 | 163 |
| 097 | 26 | 2 | 1 | 1 | 16 | 000 | 016 | 000 | 1 | 00 | 59 | 58 | 117 | 157 |
| 099 | 35 | 1 | 2 | 1 | 14 | 030 | 109 | 000 | 1 | 02 | 59 | 53 | 112 | 144 |
| 103 | 26 | 1 | 1 | 1 | 18 | 000 | 009 | 000 | 1 | 01 | 52 | 55 | 107 | 143 |
| 104 | 25 | 1 | 2 | 1 | 18 | 025 | 065 | 000 | 1 | 00 | 54 | 46 | 100 | 139 |
| 108 | 26 | 1 | 1 | 5 | 17 | 122 | 030 | 000 | 1 | 00 | 57 | 59 | 116 | 155 |
| 109 | 36 | 1 | 2 | 1 | 13 | 000 | 012 | 000 | 1 | 00 | 54 | 52 | 106 | 143 |
| 112 | 27 | 1 | 1 | 1 | 17 | 000 | 114 | 000 | 1 | 04 | 53 | 50 | 103 | 139 |
| 116 | 32 | 1 | 2 | 5 | 20 | 147 | 089 | 000 | 1 | 11 | 54 | 58 | 112 | 133 |
| 117 | 44 | 2 | 2 | 5 | 18 | 000 | 014 | 000 | 1 | 00 | 48 | 48 | 096 | 125 |
| 118 | 31 | 1 | 1 | 1 | 20 | 000 | 083 | 000 | 1 | 00 | 50 | 46 | 096 | 133 |
| 119 | 29 | 1 | 2 | 1 | 17 | 000 | 050 | 015 | 1 | 00 | 48 | 19 | 067 | 142 |
| 121 | 22 | 2 | 1 | 1 | 16 | 060 | 012 | 009 | 1 | 00 | 43 | 42 | 085 | 136 |
| 125 | 27 | 1 | 1 | 1 | 19 | 015 | 087 | 000 | 1 | 00 | 52 | 54 | 106 | 144 |
| 126 | 43 | 1 | 2 | 1 | 15 | 006 | 006 | 000 | 1 | 00 | 52 | 48 | 100 | 131 |
| 127 | 32 | 1 | 2 | 1 | 18 | 168 | 070 | 000 | 1 | 05 | 60 | 60 | 120 | 160 |
| 128 | 30 | 1 | 2 | 1 | 18 | 020 | 034 | 000 | 1 | 00 | 60 | 57 | 117 | 148 |
| 131 | 39 | 1 | 2 | 1 | 19 | 100 | 089 | 000 | 1 | 10 | 54 | 54 | 108 | 137 |
| 132 | 29 | 1 | 2 | 1 | 21 | 000 | 152 | 000 | 1 | 07 | 46 | 40 | 086 | 128 |
| 133 | 31 | 1 | 2 | 1 | 17 | 030 | 004 | 000 | 1 | 05 | 35 | 36 | 071 | 131 |
| 134 | 29 | 1 | 5 | 1 | 18 | 200 | 087 | 000 | 1 | 00 | 57 | 52 | 109 | 142 |
| 135 | 52 | 1 | 1 | 1 | 18 | 016 | 020 | 000 | 1 | 00 | 58 | 56 | 114 | 168 |
| 136 | 35 | 1 | 2 | 1 | 18 | 128 | 078 | 000 | 1 | 08 | 51 | 51 | 102 | 137 |
| 139 | 26 | 2 | 1 | 1 | 16 | 000 | 014 | 000 | 1 | 00 | 55 | 54 | 109 | 143 |
| 143 | 29 | 1 | 2 | 1 | 17 | 048 | 004 | 080 | 1 | 07 | 54 | 55 | 109 | 141 |
| 144 | 31 | 1 | 2 | 1 | 18 | 072 | 019 | 000 | 1 | 02 | 46 | 45 | 091 | 121 |
| 146 | 30 | 1 | 2 | 2 | 20 | 055 | 090 | 000 | 1 | 10 | 50 | 45 | 095 | 130 |
| 147 | 30 | 1 | 1 | 1 | 18 | 000 | 140 | 000 | 1 | 04 | 51 | 50 | 101 | 136 |
| 149 | 30 | 1 | 2 | 2 | 18 | 000 | 060 | 000 | 1 | 00 | 60 | 58 | 118 | 165 |
| 150 | 27 | 1 | 2 | 1 | 18 | 000 | 106 | 000 | 1 | 00 | 49 | 48 | 097 | 131 |
| 151 | 29 | 1 | 2 | 1 | 18 | 070 | 040 | 000 | 1 | 02 | 58 | 56 | 114 | 149 |
| 152 | 29 | 1 | 2 | 1 | 17 | 165 | 012 | 000 | 1 | 08 | 60 | 59 | 119 | 168 |
| 153 | 44 | 1 | 2 | 1 | 16 | 000 | 004 | 000 | 1 | 01 | 59 | 46 | 105 | 147 |
| 154 | 28 | 1 | 2 | 1 | 20 | 000 | 108 | 000 | 1 | 00 | 50 | 50 | 100 | 138 |
| 156 | 34 | 1 | 2 | 1 | 19 | 000 | 066 | 000 | 1 | 00 | 59 | 60 | 119 | 152 |
| 160 | 31 | 2 | 2 | 1 | 19 | 000 | 104 | 000 | 1 | 00 | 57 | 53 | 110 | 143 |
| 162 | 27 | 1 | 2 | 1 | 19 | 024 | 120 | 000 | 1 | 00 | 55 | 51 | 106 | 142 |
| 161 | 26 | 1 | 2 | 1 | 19 | 012 | 058 | 000 | 1 | 00 | 56 | 52 | 108 | 134 |
| 163 | 26 | 1 | 2 | 1 | 19 | 008 | 001 | 000 | 1 | 00 | 41 | 38 | 079 | 133 |
| 165 | 35 | 1 | 2 | 1 | 21 | 000 | 016 | 000 | 1 | 00 | 59 | 54 | 113 | 156 |
| 166 | 27 | 1 | 2 | 1 | 19 | 024 | 020 | 000 | 1 | 00 | 59 | 53 | 112 | 160 |
| 169 | 36 | 1 | 2 | 1 | 16 | 103 | 004 | 000 | 1 | 15 | 60 | 60 | 120 | 168 |
| 170 | 31 | 1 | 2 | 1 | 18 | 030 | 077 | 000 | 1 | 02 | 50 | 52 | 102 | 150 |

# Spiritual Maturity - 111

|     |    |   |   |   |    |     |     |     |   |    |    |    |     |     |
|-----|----|---|---|---|----|-----|-----|-----|---|----|----|----|-----|-----|
| 172 | 26 | 2 | 2 | 5 | 18 | 000 | 060 | 000 | 1 | 00 | 59 | 56 | 115 | 147 |
| 173 | 34 | 1 | 2 | 1 | 17 | 156 | 014 | 000 | 1 | 02 | 60 | 59 | 119 | 157 |
| 175 | 57 | 2 | 2 | 1 | 20 | 042 | 036 | 000 | 1 | 09 | 44 | 42 | 086 | 125 |
| 176 | 26 | 1 | 2 | 1 | 19 | 000 | 059 | 000 | 1 | 03 | 59 | 57 | 116 | 162 |
| 177 | 33 | 1 | 2 | 1 | 18 | 096 | 042 | 000 | 1 | 00 | 55 | 55 | 110 | 131 |
| 178 | 29 | 1 | 2 | 1 | 17 | 000 | 024 | 000 | 1 | 00 | 56 | 54 | 110 | 152 |
| 179 | 24 | 1 | 2 | 1 | 18 | 025 | 050 | 000 | 1 | 00 | 56 | 52 | 108 | 135 |
| 180 | 26 | 1 | 2 | 1 | 17 | 000 | 015 | 000 | 1 | 00 | 58 | 42 | 100 | 141 |
| 181 | 30 | 1 | 2 | 2 | 20 | 100 | 126 | 000 | 1 | 03 | 60 | 56 | 116 | 155 |
| 182 | 28 | 1 | 2 | 1 | 18 | 100 | 042 | 000 | 1 | 00 | 46 | 47 | 093 | 118 |
| 183 | 24 | 1 | 2 | 1 | 18 | 000 | 040 | 000 | 1 | 02 | 59 | 53 | 112 | 147 |
| 185 | 24 | 1 | 2 | 1 | 18 | 130 | 041 | 000 | 1 | 01 | 56 | 55 | 111 | 144 |
| 186 | 29 | 1 | 2 | 1 | 18 | 000 | 075 | 000 | 1 | 00 | 46 | 43 | 089 | 125 |
| 187 | 24 | 1 | 2 | 1 | 18 | 042 | 055 | 000 | 1 | 00 | 51 | 57 | 108 | 116 |
| 188 | 32 | 1 | 2 | 1 | 20 | 000 | 098 | 000 | 1 | 00 | 55 | 60 | 115 | 154 |
| 189 | 30 | 1 | 2 | 1 | 19 | 000 | 018 | 000 | 1 | 00 | 50 | 47 | 097 | 135 |
| 190 | 28 | 1 | 2 | 5 | 16 | 016 | 010 | 000 | 1 | 00 | 50 | 37 | 087 | 140 |
| 191 | 34 | 1 | 2 | 1 | 18 | 000 | 009 | 000 | 1 | 00 | 50 | 43 | 093 | 139 |
| 192 | 29 | 1 | 1 | 1 | 19 | 000 | 086 | 000 | 1 | 00 | 54 | 52 | 106 | 152 |
| 193 | 40 | 1 | 2 | 1 | 18 | 009 | 026 | 000 | 1 | 17 | 60 | 57 | 117 | 158 |
| 194 | 30 | 1 | 2 | 1 | 19 | 100 | 000 | 000 | 1 | 00 | 50 | 49 | 099 | 138 |
| 195 | 34 | 1 | 2 | 1 | 20 | 028 | 155 | 000 | 1 | 01 | 50 | 46 | 096 | 142 |
| 196 | 27 | 2 | 1 | 1 | 17 | 012 | 030 | 000 | 1 | 00 | 56 | 54 | 110 | 136 |
| 197 | 27 | 2 | 1 | 1 | 18 | 000 | 053 | 008 | 1 | 00 | 58 | 55 | 113 | 166 |
| 198 | 25 | 1 | 2 | 1 | 17 | 130 | 016 | 000 | 1 | 02 | 55 | 53 | 108 | 146 |
| 200 | 32 | 1 | 2 | 1 | 18 | 110 | 037 | 000 | 1 | 01 | 58 | 54 | 112 | 160 |
| 201 | 25 | 1 | 1 | 1 | 18 | 112 | 072 | 000 | 1 | 00 | 54 | 57 | 111 | 148 |
| 202 | 29 | 1 | 2 | 1 | 20 | 000 | 070 | 000 | 1 | 00 | 49 | 51 | 100 | 142 |
| 204 | 27 | 1 | 2 | 1 | 19 | 000 | 080 | 000 | 1 | 00 | 59 | 60 | 119 | 165 |
| 205 | 33 | 1 | 2 | 1 | 18 | 000 | 034 | 000 | 1 | 01 | 60 | 56 | 116 | 156 |
| 206 | 25 | 2 | 1 | 5 | 17 | 080 | 013 | 000 | 1 | 00 | 54 | 55 | 109 | 134 |
| 207 | 30 | 1 | 2 | 1 | 18 | 008 | 007 | 000 | 1 | 00 | 56 | 51 | 107 | 141 |
| 208 | 29 | 1 | 2 | 1 | 18 | 000 | 050 | 000 | 1 | 00 | 60 | 57 | 117 | 158 |
| 209 | 25 | 1 | 1 | 1 | 18 | 000 | 035 | 000 | 1 | 02 | 60 | 58 | 118 | 159 |
| 210 | 30 | 2 | 1 | 1 | 18 | 138 | 000 | 000 | 1 | 00 | 56 | 50 | 106 | 142 |
| 211 | 50 | 1 | 2 | 1 | 17 | 024 | 016 | 000 | 1 | 00 | 57 | 54 | 111 | 140 |
| 212 | 27 | 1 | 2 | 1 | 21 | 000 | 074 | 000 | 1 | 00 | 49 | 37 | 086 | 136 |
| 213 | 30 | 1 | 2 | 1 | 17 | 192 | 045 | 000 | 1 | 02 | 60 | 54 | 114 | 150 |
| 214 | 36 | 1 | 2 | 1 | 20 | 096 | 024 | 000 | 1 | 00 | 57 | 57 | 114 | 154 |
| 215 | 36 | 1 | 2 | 1 | 19 | 000 | 145 | 000 | 1 | 00 | 50 | 49 | 099 | 122 |
| 216 | 53 | 1 | 2 | 1 | 18 | 020 | 050 | 000 | 1 | 00 | 55 | 53 | 108 | 147 |
| 217 | 36 | 1 | 2 | 1 | 19 | 030 | 050 | 000 | 1 | 03 | 60 | 46 | 106 | 160 |
| 219 | 40 | 1 | 2 | 1 | 23 | 120 | 120 | 070 | 1 | 07 | 59 | 55 | 114 | 158 |
| 221 | 30 | 1 | 2 | 1 | 18 | 000 | 046 | 000 | 1 | 00 | 35 | 40 | 075 | 149 |
| 222 | 38 | 1 | 2 | 1 | 19 | 120 | 096 | 000 | 1 | 11 | 44 | 41 | 085 | 131 |
| 223 | 28 | 1 | 2 | 1 | 19 | 066 | 080 | 000 | 1 | 00 | 41 | 43 | 084 | 141 |
| 224 | 29 | 1 | 2 | 1 | 17 | 000 | 016 | 000 | 1 | 01 | 59 | 53 | 112 | 137 |
| 225 | 33 | 1 | 1 | 1 | 22 | 000 | 184 | 000 | 1 | 01 | 48 | 46 | 094 | 127 |

# Spiritual Maturity - 112

|     |    |   |   |   |    |     |     |     |   |    |    |    |     |     |
|-----|----|---|---|---|----|-----|-----|-----|---|----|----|----|-----|-----|
| 226 | 30 | 1 | 2 | 1 | 19 | 120 | 090 | 000 | 1 | 01 | 60 | 57 | 117 | 154 |
| 227 | 28 | 1 | 1 | 2 | 18 | 131 | 060 | 000 | 1 | 03 | 51 | 53 | 104 | 134 |
| 229 | 36 | 1 | 1 | 1 | 19 | 128 | 080 | 000 | 1 | 00 | 40 | 41 | 081 | 121 |
| 230 | 27 | 1 | 2 | 1 | 19 | 000 | 112 | 000 | 1 | 00 | 60 | 55 | 115 | 155 |
| 231 | 22 | 2 | 1 | 1 | 17 | 159 | 026 | 000 | 1 | 00 | 56 | 44 | 100 | 139 |
| 232 | 50 | 1 | 2 | 1 | 16 | 034 | 091 | 000 | 1 | 00 | 42 | 41 | 083 | 147 |
| 233 | 45 | 1 | 2 | 1 | 16 | 000 | 008 | 000 | 1 | 00 | 50 | 50 | 100 | 140 |
| 235 | 29 | 1 | 2 | 1 | 20 | 000 | 130 | 146 | 1 | 02 | 51 | 49 | 100 | 134 |
| 236 | 29 | 2 | 1 | 1 | 18 | 000 | 014 | 000 | 1 | 00 | 46 | 46 | 092 | 126 |
| 237 | 33 | 1 | 1 | 1 | 21 | 000 | 188 | 000 | 1 | 01 | 60 | 57 | 117 | 150 |
| 238 | 28 | 2 | 1 | 1 | 19 | 000 | 082 | 000 | 1 | 00 | 50 | 41 | 091 | 129 |
| 239 | 34 | 1 | 2 | 1 | 19 | 054 | 075 | 000 | 1 | 00 | 51 | 53 | 104 | 139 |
| 240 | 24 | 1 | 2 | 1 | 18 | 050 | 050 | 000 | 1 | 02 | 47 | 50 | 097 | 141 |
| 241 | 24 | 1 | 2 | 1 | 17 | 030 | 020 | 000 | 1 | 00 | 39 | 40 | 079 | 124 |
| 242 | 29 | 1 | 2 | 1 | 18 | 000 | 045 | 000 | 1 | 00 | 58 | 59 | 117 | 161 |
| 244 | 28 | 1 | 2 | 1 | 18 | 000 | 048 | 000 | 1 | 02 | 60 | 55 | 115 | 155 |
| 246 | 27 | 1 | 2 | 1 | 19 | 120 | 070 | 000 | 1 | 02 | 54 | 56 | 110 | 158 |
| 247 | 29 | 1 | 2 | 1 | 17 | 000 | 016 | 000 | 1 | 00 | 43 | 37 | 080 | 144 |
| 248 | 35 | 1 | 2 | 1 | 18 | 036 | 070 | 000 | 1 | 02 | 49 | 53 | 102 | 141 |
| 249 | 25 | 1 | 2 | 1 | 16 | 006 | 004 | 000 | 1 | 00 | 46 | 60 | 106 | 137 |
| 252 | 65 | 1 | 2 | 1 | 16 | 008 | 000 | 000 | 2 | 34 | 43 | 41 | 084 | 139 |
| 253 | 42 | 1 | 2 | 1 | 21 | 030 | 144 | 000 | 2 | 10 | 55 | 56 | 111 | 156 |
| 254 | 39 | 1 | 2 | 1 | 17 | 096 | 000 | 000 | 2 | 05 | 60 | 59 | 119 | 155 |
| 255 | 40 | 1 | 2 | 1 | 20 | 000 | 120 | 000 | 2 | 03 | 60 | 58 | 118 | 167 |
| 256 | 39 | 1 | 2 | 1 | 20 | 002 | 090 | 000 | 2 | 06 | 55 | 48 | 103 | 096 |
| 258 | 37 | 1 | 2 | 1 | 20 | 000 | 012 | 125 | 2 | 09 | 53 | 46 | 099 | 134 |
| 259 | 53 | 1 | 2 | 1 | 20 | 000 | 120 | 000 | 2 | 27 | 60 | 59 | 119 | 158 |
| 262 | 31 | 1 | 2 | 1 | 19 | 195 | 155 | 000 | 2 | 03 | 58 | 52 | 110 | 142 |
| 264 | 44 | 1 | 2 | 1 | 20 | 156 | 148 | 000 | 2 | 08 | 50 | 50 | 100 | 151 |
| 265 | 39 | 1 | 2 | 1 | 19 | 096 | 144 | 000 | 2 | 01 | 41 | 35 | 076 | 115 |
| 266 | 63 | 1 | 2 | 1 | 16 | 136 | 000 | 000 | 2 | 23 | 58 | 59 | 117 | 150 |
| 267 | 38 | 1 | 2 | 1 | 23 | 160 | 156 | 000 | 2 | 06 | 52 | 51 | 103 | 135 |
| 269 | 64 | 1 | 2 | 1 | 19 | 034 | 102 | 000 | 2 | 31 | 58 | 53 | 111 | 161 |
| 271 | 45 | 1 | 2 | 1 | 17 | 094 | 000 | 009 | 2 | 08 | 56 | 46 | 102 | 138 |
| 272 | 35 | 1 | 2 | 1 | 19 | 000 | 006 | 000 | 2 | 07 | 60 | 60 | 120 | 168 |
| 273 | 32 | 1 | 2 | 1 | 16 | 012 | 000 | 000 | 2 | 11 | 48 | 54 | 102 | 134 |
| 274 | 31 | 1 | 2 | 1 | 20 | 000 | 012 | 000 | 2 | 05 | 56 | 52 | 108 | 145 |
| 275 | 51 | 1 | 2 | 1 | 20 | 064 | 130 | 000 | 2 | 16 | 58 | 60 | 118 | 157 |
| 277 | 46 | 1 | 2 | 1 | 20 | 000 | 000 | 000 | 2 | 26 | 58 | 60 | 118 | 159 |
| 278 | 61 | 1 | 2 | 1 | 19 | 000 | 120 | 000 | 2 | 33 | 40 | 40 | 080 | 127 |
| 279 | 63 | 1 | 2 | 1 | 19 | 000 | 000 | 000 | 2 | 41 | 60 | 55 | 115 | 174 |
| 280 | 32 | 1 | 2 | 1 | 14 | 064 | 000 | 000 | 2 | 09 | 52 | 50 | 102 | 144 |
| 281 | 53 | 1 | 2 | 1 | 20 | 000 | 120 | 000 | 2 | 21 | 60 | 60 | 120 | 155 |
| 282 | 39 | 1 | 2 | 1 | 16 | 098 | 000 | 000 | 2 | 05 | 57 | 56 | 113 | 139 |
| 283 | 55 | 1 | 2 | 1 | 19 | 000 | 120 | 000 | 2 | 30 | 59 | 59 | 118 | 159 |
| 284 | 34 | 1 | 2 | 1 | 16 | 060 | 000 | 000 | 2 | 08 | 55 | 59 | 114 | 170 |
| 285 | 56 | 1 | 2 | 1 | 20 | 130 | 134 | 000 | 2 | 30 | 50 | 54 | 104 | 130 |
| 286 | 41 | 1 | 2 | 1 | 19 | 000 | 143 | 000 | 2 | 07 | 57 | 50 | 107 | 149 |

# Spiritual Maturity - 113

|     |    |   |   |   |    |     |     |     |   |    |    |    |     |     |
|-----|----|---|---|---|----|-----|-----|-----|---|----|----|----|-----|-----|
| 287 | 68 | 1 | 2 | 1 | 17 | 000 | 096 | 000 | 2 | 30 | 58 | 56 | 114 | 163 |
| 288 | 59 | 1 | 2 | 1 | 12 | 120 | 002 | 000 | 2 | 33 | 56 | 52 | 108 | 159 |
| 289 | 38 | 1 | 2 | 1 | 19 | 000 | 000 | 000 | 2 | 12 | 49 | 39 | 088 | 134 |
| 290 | 38 | 1 | 2 | 1 | 19 | 006 | 000 | 010 | 2 | 10 | 60 | 58 | 118 | 167 |
| 292 | 44 | 1 | 2 | 1 | 19 | 090 | 090 | 000 | 2 | 16 | 59 | 57 | 116 | 163 |
| 293 | 42 | 1 | 2 | 2 | 16 | 196 | 000 | 025 | 2 | 07 | 60 | 60 | 120 | 167 |
| 297 | 37 | 1 | 2 | 1 | 16 | 016 | 000 | 000 | 2 | 10 | 60 | 57 | 117 | 165 |
| 298 | 45 | 1 | 2 | 1 | 19 | 090 | 148 | 400 | 2 | 06 | 59 | 52 | 111 | 148 |
| 299 | 67 | 1 | 2 | 1 | 19 | 002 | 012 | 000 | 2 | 30 | 40 | 39 | 079 | 122 |
| 300 | 43 | 1 | 2 | 1 | 18 | 180 | 090 | 000 | 2 | 10 | 59 | 60 | 119 | 157 |
| 301 | 31 | 1 | 2 | 1 | 19 | 000 | 103 | 000 | 2 | 04 | 50 | 41 | 091 | 145 |
| 302 | 36 | 1 | 2 | 1 | 19 | 140 | 143 | 000 | 2 | 08 | 58 | 55 | 113 | 149 |
| 303 | 61 | 1 | 2 | 1 | 12 | 000 | 000 | 000 | 2 | 10 | 44 | 44 | 088 | 135 |
| 304 | 39 | 1 | 2 | 1 | 19 | 153 | 150 | 000 | 2 | 10 | 56 | 49 | 105 | 147 |
| 305 | 57 | 1 | 2 | 1 | 14 | 128 | 036 | 000 | 2 | 30 | 60 | 54 | 114 | 163 |
| 306 | 36 | 1 | 2 | 1 | 20 | 000 | 128 | 000 | 2 | 09 | 60 | 57 | 117 | 161 |
| 309 | 42 | 1 | 2 | 1 | 19 | 000 | 000 | 000 | 2 | 14 | 47 | 46 | 093 | 131 |
| 310 | 40 | 1 | 2 | 1 | 19 | 000 | 000 | 000 | 2 | 11 | 58 | 55 | 113 | 142 |
| 311 | 35 | 1 | 2 | 1 | 19 | 030 | 000 | 000 | 2 | 12 | 58 | 59 | 117 | 149 |
| 312 | 30 | 2 | 2 | 1 | 17 | 045 | 000 | 000 | 2 | 00 | 57 | 54 | 111 | 158 |
| 313 | 49 | 1 | 2 | 1 | 14 | 074 | 000 | 000 | 2 | 17 | 41 | 38 | 079 | 118 |
| 314 | 51 | 1 | 2 | 1 | 21 | 000 | 000 | 000 | 2 | 26 | 58 | 59 | 117 | 160 |
| 315 | 52 | 1 | 2 | 1 | 17 | 256 | 000 | 017 | 2 | 28 | 57 | 52 | 109 | 147 |
| 317 | 46 | 1 | 2 | 1 | 16 | 006 | 000 | 000 | 2 | 11 | 60 | 59 | 119 | 168 |
| 318 | 52 | 1 | 2 | 1 | 23 | 053 | 128 | 000 | 2 | 26 | 60 | 60 | 120 | 175 |
| 319 | 38 | 1 | 2 | 1 | 20 | 000 | 160 | 000 | 2 | 10 | 58 | 55 | 113 | 155 |
| 320 | 34 | 1 | 2 | 1 | 19 | 000 | 120 | 000 | 2 | 08 | 53 | 50 | 103 | 142 |
| 321 | 54 | 1 | 2 | 1 | 19 | 000 | 000 | 000 | 2 | 28 | 56 | 55 | 111 | 145 |
| 322 | 49 | 1 | 2 | 1 | 16 | 096 | 000 | 018 | 2 | 27 | 60 | 57 | 117 | 144 |
| 323 | 57 | 1 | 2 | 1 | 18 | 005 | 004 | 005 | 2 | 30 | 48 | 37 | 085 | 132 |
| 324 | 40 | 1 | 2 | 1 | 21 | 033 | 096 | 000 | 2 | 18 | 56 | 48 | 104 | 151 |
| 326 | 39 | 1 | 2 | 1 | 20 | 000 | 000 | 000 | 2 | 13 | 58 | 52 | 110 | 148 |
| 327 | 42 | 1 | 2 | 1 | 24 | 120 | 090 | 075 | 1 | 16 | 60 | 54 | 114 | 165 |
| 328 | 48 | 1 | 2 | 1 | 20 | 000 | 143 | 000 | 2 | 09 | 58 | 43 | 101 | 153 |
| 329 | 52 | 1 | 2 | 1 | 19 | 000 | 093 | 000 | 2 | 26 | 52 | 45 | 097 | 132 |
| 330 | 52 | 1 | 2 | 1 | 20 | 000 | 090 | 000 | 2 | 23 | 56 | 56 | 112 | 155 |
| 331 | 34 | 1 | 2 | 1 | 19 | 000 | 180 | 135 | 2 | 05 | 50 | 51 | 101 | 134 |
| 332 | 38 | 1 | 2 | 1 | 19 | 000 | 090 | 000 | 2 | 07 | 59 | 59 | 118 | 148 |
| 333 | 39 | 1 | 2 | 1 | 15 | 020 | 000 | 000 | 2 | 12 | 59 | 53 | 112 | 172 |
| 334 | 33 | 1 | 2 | 2 | 19 | 096 | 098 | 000 | 2 | 06 | 50 | 48 | 098 | 135 |
| 335 | 43 | 1 | 2 | 1 | 24 | 032 | 165 | 000 | 2 | 15 | 50 | 48 | 098 | 130 |
| 337 | 47 | 1 | 2 | 1 | 19 | 000 | 090 | 000 | 2 | 19 | 60 | 49 | 109 | 172 |
| 338 | 61 | 1 | 2 | 1 | 23 | 000 | 096 | 144 | 2 | 30 | 50 | 56 | 106 | 133 |
| 340 | 27 | 1 | 2 | 1 | 19 | 130 | 144 | 000 | 2 | 01 | 60 | 52 | 112 | 149 |
| 341 | 43 | 1 | 2 | 4 | 21 | 000 | 124 | 000 | 2 | 05 | 59 | 58 | 117 | 163 |
| 345 | 35 | 1 | 2 | 1 | 23 | 000 | 200 | 000 | 2 | 06 | 57 | 58 | 115 | 156 |
| 346 | 33 | 1 | 2 | 1 | 19 | 014 | 144 | 000 | 2 | 05 | 51 | 40 | 091 | 149 |
| 347 | 46 | 1 | 2 | 1 | 20 | 120 | 120 | 000 | 2 | 07 | 59 | 51 | 110 | 154 |

# Spiritual Maturity - 114

|     |    |   |   |   |    |     |     |     |   |    |    |    |     |     |
|-----|----|---|---|---|----|-----|-----|-----|---|----|----|----|-----|-----|
| 348 | 45 | 1 | 2 | 1 | 19 | 120 | 060 | 000 | 2 | 23 | 60 | 57 | 117 | 167 |
| 349 | 35 | 1 | 2 | 1 | 19 | 000 | 150 | 000 | 2 | 08 | 60 | 57 | 117 | 165 |
| 350 | 62 | 1 | 2 | 1 | 19 | 000 | 090 | 000 | 2 | 36 | 53 | 58 | 111 | 150 |
| 351 | 41 | 1 | 2 | 1 | 20 | 100 | 100 | 000 | 2 | 16 | 47 | 52 | 099 | 155 |
| 352 | 62 | 1 | 2 | 1 | 20 | 030 | 108 | 045 | 2 | 24 | 59 | 56 | 115 | 159 |
| 353 | 53 | 1 | 2 | 1 | 22 | 000 | 000 | 000 | 2 | 19 | 58 | 50 | 108 | 152 |
| 355 | 60 | 1 | 2 | 1 | 24 | 000 | 000 | 000 | 2 | 29 | 50 | 51 | 101 | 124 |
| 357 | 31 | 1 | 2 | 1 | 20 | 030 | 144 | 000 | 2 | 05 | 40 | 40 | 080 | 130 |
| 358 | 48 | 2 | 1 | 1 | 19 | 000 | 000 | 000 | 1 | 00 | 39 | 39 | 078 | 140 |
| 359 | 39 | 1 | 2 | 1 | 19 | 000 | 108 | 000 | 2 | 14 | 59 | 55 | 114 | 147 |
| 363 | 42 | 1 | 2 | 1 | 19 | 036 | 135 | 000 | 2 | 12 | 59 | 57 | 116 | 161 |
| 364 | 30 | 1 | 2 | 1 | 20 | 030 | 000 | 006 | 2 | 04 | 60 | 60 | 120 | 166 |
| 366 | 38 | 1 | 2 | 1 | 22 | 120 | 120 | 060 | 2 | 10 | 57 | 44 | 101 | 163 |
| 365 | 39 | 1 | 2 | 1 | 18 | 000 | 000 | 000 | 2 | 16 | 42 | 42 | 084 | 112 |
| 367 | 64 | 1 | 2 | 1 | 14 | 096 | 000 | 000 | 2 | 35 | 50 | 52 | 102 | 133 |
| 371 | 42 | 1 | 2 | 1 | 24 | 039 | 192 | 000 | 2 | 07 | 59 | 58 | 117 | 149 |
| 373 | 32 | 1 | 2 | 1 | 18 | 128 | 092 | 000 | 2 | 10 | 56 | 57 | 113 | 145 |
| 374 | 43 | 1 | 2 | 1 | 19 | 033 | 096 | 000 | 2 | 19 | 51 | 38 | 089 | 133 |
| 375 | 57 | 1 | 2 | 1 | 21 | 000 | 000 | 000 | 2 | 12 | 52 | 48 | 100 | 143 |
| 376 | 47 | 1 | 2 | 1 | 22 | 000 | 000 | 000 | 2 | 20 | 48 | 38 | 086 | 149 |
| 379 | 54 | 1 | 2 | 1 | 20 | 000 | 000 | 000 | 2 | 28 | 56 | 50 | 106 | 148 |
| 381 | 34 | 1 | 2 | 1 | 19 | 000 | 153 | 000 | 2 | 03 | 55 | 57 | 112 | 155 |
| 382 | 56 | 1 | 2 | 1 | 22 | 017 | 000 | 000 | 2 | 23 | 60 | 52 | 112 | 156 |
| 383 | 39 | 1 | 2 | 1 | 20 | 000 | 000 | 000 | 2 | 10 | 47 | 48 | 095 | 138 |
| 384 | 31 | 1 | 2 | 1 | 20 | 000 | 090 | 000 | 2 | 02 | 57 | 58 | 115 | 154 |
| 386 | 53 | 1 | 2 | 1 | 20 | 000 | 096 | 000 | 2 | 28 | 57 | 57 | 114 | 144 |
| 392 | 33 | 1 | 2 | 1 | 20 | 000 | 150 | 000 | 2 | 02 | 57 | 52 | 109 | 154 |
| 393 | 45 | 1 | 2 | 1 | 00 | 000 | 144 | 000 | 2 | 08 | 52 | 52 | 104 | 149 |

RAW DATA

Key of Raw Data By Columns

|             |          |
|-------------|----------|
| 1 = Subject | 26 = SMI |
| 2 = SWB     | 27 = SMI |
| 3 = SWB     | 28 = SMI |
| 4 = SWB     | 29 = SMI |
| 5 = SWB     | 30 = SMI |
| 6 = SWB     | 31 = SMI |
| 7 = SWB     | 32 = SMI |
| 8 = SWB     | 33 = SMI |
| 9 = SWB     | 34 = SMI |
| 10 = SWB    | 35 = SMI |
| 11 = SWB    | 36 = SMI |
| 12 = SWB    | 37 = SMI |
| 13 = SWB    | 38 = SMI |
| 14 = SWB    | 39 = SMI |
| 15 = SWB    | 40 = SMI |
| 16 = SWB    | 41 = SMI |
| 17 = SWB    | 42 = SMI |
| 18 = SWB    | 43 = SMI |
| 19 = SWB    | 44 = SMI |
| 20 = SWB    | 45 = SMI |
| 21 = SWB    | 46 = SMI |
| 22 = SMI    | 47 = SMI |
| 23 = SMI    | 48 = SMI |
| 24 = SMI    | 49 = SMI |
| 25 = SMI    | 50 = SMI |
|             | 51 = SMI |

000 4 4 2 2 4 4 2 2 4 2 2 4 4 2 2 4 2 2 1 4 4 1 4 4 2 4 4 4 1 4 1 4 4 1 2 4 2 2 4 2 2 4 2 2 2 4 2  
001 6 6 1 1 6 5 1 2 6 1 1 6 6 1 2 5 2 6 2 1 5 2 6 1 4 2 1 2 4 6 3 4 2 5 5 2 1 5 2 1 5 3 3 6 1 1 1 2 5 2  
002 4 5 1 1 6 3 2 3 6 2 1 6 5 2 2 5 1 6 1 2 2 2 6 2 4 3 2 4 4 5 3 4 3 3 4 3 2 5 3 4 3 4 3 4 1 1 3 3 4 3  
004 6 6 1 1 6 6 2 1 6 1 1 6 5 1 1 6 1 6 1 1 6 2 5 1 2 1 1 4 3 6 2 6 2 6 4 1 3 6 1 2 4 3 3 5 1 1 2 2 5 2  
008 5 6 1 1 6 4 1 1 6 1 1 6 5 1 2 5 1 6 1 1 6 1 6 1 1 1 3 6 4 6 2 3 2 5 3 3 3 6 3 2 4 4 3 3 1 1 2 2 3 2  
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018 3 4 1 1 6 6 3 2 4 1 1 6 4 1 4 6 4 6 3 1 5 4 3 1 5 1 2 6 2 4 4 3 4 6 3 2 1 6 3 2 1 4 4 3 1 1 5 4 4 4  
020 6 6 1 3 6 6 1 3 6 3 1 4 4 3 3 4 3 4 3 1 4 3 6 1 4 3 2 6 4 6 3 4 3 6 4 1 1 6 3 1 4 3 3 4 1 1 1 3 4 2  
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025 5 6 1 1 6 6 1 1 1 1 1 6 6 1 3 6 1 6 1 1 4 1 1 1 2 1 1 6 6 6 2 6 3 6 6 1 1 6 3 1 6 3 4 4 1 1 4 3 6 2  
030 4 5 3 3 4 4 3 3 4 3 3 4 4 3 3 4 3 4 3 3 4 3 4 1 3 1 3 4 4 6 4 3 3 4 3 3 3 3 3 4 3 3 2 3 1 3 4 3 3  
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045 3 6 1 1 6 6 1 1 6 1 1 6 6 1 2 5 1 6 1 1 5 2 3 2 5 3 4 5 4 6 2 4 3 5 5 2 1 6 2 1 5 4 2 3 1 1 4 3 5 2  
049 6 6 1 2 6 6 2 3 6 2 2 6 6 2 2 5 1 6 2 2 1 1 5 2 4 1 3 6 5 5 2 5 2 6 5 2 1 6 2 3 6 2 3 6 1 3 3 3 4 1  
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054 4 6 1 2 6 5 1 3 6 2 1 4 6 2 3 3 1 6 1 1 2 3 3 1 4 3 3 4 4 6 4 6 3 6 4 3 4 6 3 3 6 4 3 3 3 5 3 4 3  
055 3 4 2 5 4 1 2 4 3 4 3 3 4 4 5 2 4 4 5 1 2 5 3 2 1 4 6 1 2 6 3 4 3 4 6 4 5 4 5 4 2 3 2 2 4 3 2 2  
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058 5 6 1 1 6 6 1 1 6 1 1 6 6 1 2 6 1 6 1 1 6 1 6 1 3 1 3 6 2 6 2 3 2 6 5 1 1 6 1 1 6 1 2 5 1 1 3 2 4 1  
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062 4 4 1 1 6 1 2 6 5 3 1 4 5 1 2 4 1 6 2 2 2 3 2 1 1 1 3 5 2 5 3 3 3 4 4 2 1 4 3 2 4 3 3 4 1 2 2 2 4 2



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APPENDIX F

VITA



VITA

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