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From Patient to Student Activation: Development of the Student Activation Measure

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Abstract

The Patient Activation Measure (PAM) was constructed to measure a person's knowledge, skill, and confidence for self-managing one's healthcare, or "activation" (Hibbard, Stockard, Mahoney, & Tusler, 2004). The Student Activation Measure (SAM) extends this definition to secondary education. The SAM is a short, positively worded measure that is intended to guide intervention planning. Six hundred three students from two disparate high schools located in the Pacific Northwest completed the measure and an accompanying demographic questionnaire. The respective schools provided the students' GPAs and attendance records. Using Rasch modeling, the SAM evidenced excellent reliability and construct validity. One-way ANOVAs with post hoc Scheffe's tests showed that higher SAM scores had significantly higher GPAs, fewer absences, increased time spent on homework, and less time spent on social media or playing video games. Overall, the SAM showed promise as both a research and intervention tool. In addition, the concept of activation has the added benefits of ease of measurement and bridges the gap between evidence-based practices in medicine and

secondary education. Further research is needed to understand the properties of the SAM when used with students diagnosed with learning impairing disorders such as ADHD.

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Chapter 1

Introduction

There is an ongoing call to improve the status of education in America. With over 700,000 high school dropouts per year, the U.S. lags behind other industrialized countries in every major objective measurement of educational quality (Levin, Belfield, Muennig, & Rouse, 2007; Organisation for Economic Cooperation and Development [OECD], 2013). In addition, the U.S. has not made any significant progress in closing the education gap between itself and other industrialized countries since making it a priority (OECD, 2013). These results were startling enough for the Secretary of the U.S. Department of Education to declare that the U.S. education system was in a "state of crisis" (Chuck, 2013).

There are clear economic consequences to students dropping out of high school. High school dropouts tend to require more government spending and will earn approximately $206,000 less than their counterparts who graduate (Levin et al., 2007). If high school dropouts were reduced by 50%, America would gain approximately $45 billion in tax revenues and reduced public spending. Because of this, the benefits to society of funding interventions aimed at reducing high school dropouts are 212 times greater than the cost of the interventions themselves (Levin et al., 2007).

Psychologists have been involved with the education system for over 100 years and have contributed thousands of articles aimed at improving the academic outcomes of students (Richardson, Abraham, & Bond, 2012). As a result, schools have implemented intelligence

testing, implemented group learning, and rethought the learning process. In the last 20 years, the focus has shifted to an emphasis on the individual characteristics of the learner (Fredricks, Blumenfeld, & Paris, 2004; Zimmerman, 2000).

Self-Efficacy and Education

Self-efficacy has been a particularly promising construct for educational research. Bandura's definition of self-efficacy continues to be the most commonly accepted and utilized among researchers; he defined self-efficacy as "the belief in one's capabilities to organize and execute courses of action required to produce given attainments" (Bandura, 1997, p. 3; Chemers, Hu, & Garcia, 2001). Self-efficacy has proven to be an effective way of predicting academic outcomes and has the added value of being a construct that is conceptually and psychometrically different from other self-oriented constructs such as self-beliefs and perceived outcomes (Multon, Brown, & Lent, 1991; Zimmerman, Bandura, & Martinez-Pons, 1992). Self-efficacy models are more effective and consistent in predicting student's academic performance than other variables such as personality traits and demographic variables (Multon et al., 1991; Richardson et al., 2012; Schunk, 1988; Zimmerman et al., 1992).

Self-efficacy is particularly useful in an educational setting in that it tends to operate in a feedback loop with performance evaluations provided by educators (Multon et al., 1991; Schunk, 1988). Because of this, students with high self-efficacy tend to persist longer on challenging tasks, approach hard tasks with more optimism, overcome stress associated with academic rigor, and are more committed to staying in school (Chemers et al., 2001; Zajacova, Lynch, & Espenshade, 2005). Impressively, self-efficacy can explain between 14-25% of the variance in predicting academic performances (Multon et al., 1991; Pajares, 2006).

A learning strategy that has received particular attention has been students' utilization and acquisition of study skills. Study skills are an important part of a successful academic learning strategy and have also shown to be an effective way to improve the academic performance of students (Credé & Kuncel, 2008; Hassanbeigi et al., 2011; Robbins et al., 2004). However, the relationship between study skills and academic success is not as strong as academic self-efficacy and academic success (Robbins et al., 2004). This discrepancy could be due to difficulties in measuring study skills, but it seems that study skills and academic self-efficacy are related constructs (Credé & Kuncel, 2008; Robbins et al., 2004; Zimmerman, 2000).

Student Engagement in Education

Another line of research has focused on student engagement as a predictor of academic outcomes. In the early stages of its conceptualization, student engagement was meant to help educators understand and combat student boredom and reduce dropouts (Christenson, Reschly, & Wylie, 2012). An early definition was "the student's psychological investment in and effort directed toward learning, understanding, or mastering the knowledge, skills, or craft that academic work is intended to promote" (Newmann, 1992, p. 12). While student engagement lacks the sheer number of studies that self-efficacy has gained, it does offer other advantages. One such advantage is that engagement can be separated into three components: behavioral, cognitive, and emotional (Fredricks et al., 2004).

> Behavioral engagement draws on the idea of participation; it includes involvement in academic and social or extracurricular activities and is considered crucial for achieving positive academic outcomes and preventing dropping out. Emotional engagement encompasses positive and negative reactions to teachers, classmates, academics, and

> school and is presumed to create ties to an institution and influence willingness to do the work. Finally, cognitive engagement draws on the idea of investment; it incorporates thoughtfulness and willingness to exert the effort necessary to comprehend complex ideas and master difficult skills. (Fredricks et al., 2004, p. 60)

By separating these components, it is possible to develop a multifaceted conceptualization of a student's learning process. As is true of many constructs in psychology and education, scholars are not in full agreement about the components of student engagement. Another model of engagement includes four components of engagement: academic, social, cognitive, and affective. Other definitions include an academic domain in addition to the cognitive, affective, and behavioral domains previously listed (Shui-fong Lam et al., 2014). As of yet, there is no agreed upon definition of engagement, and the term is often used by researchers to describe varying constructs (Reschly & Christenson, 2012). Even amidst problems defining the concept, several studies have found engagement to be related to positive outcomes for students, including better grades, higher test scores, better attendance, lower chance of dropping out, higher chance of graduating, more academic resilience, and less chance of engaging in risky behaviors (as found in Skinner, Furrer, Marchand, & Kindermann, 2008).

Using Frederick and colleague's definition, Skinner and colleagues attempted to gain understanding of the internal dynamics of behavioral and emotional engagement. Their findings indicated that emotional components of engagement significantly influenced behavioral components but the relationship was not reciprocal (Skinner et al., 2008). Skinner, Kindermann, and Furrer (2009) hypothesized that engagement exists along a continuum ranging from engagement to disaffection for both the emotional and behavioral components of engagement.

This emphasis on disaffection is rare among other studies of engagement but is closer to the original work done by Newmann (1992). A student that is behaviorally, affectively, and cognitively engaged with their studies attends class regularly, feels comfortable in the classroom, and has developed a plan to meet the goals necessary for academic success. A disaffected student is often tardy or misses class, feels like there is little to gain from school, and has little interest in creating strategies to meet academic requirements.

Cognitive engagement has received less attention than other facets of student engagement (Fredricks et al., 2004). Studies have shown it to be positively correlated to teacher support and to play an important role in the learning process (Fredricks, Blumenfeld, Friedel, & Paris, 2002). Deep Cognitive Processing is a term commonly associated with cognitive engagement (Shui-fong Lam et al., 2014; Wolters, Yu, & Pintrich, 1996). This depth of processing approach allows for the concept of cognitive engagement to be differentiated from other constructs and means that students should have better understanding and retention of important material (Shui-fong Lam et al., 2014).

Self-Regulated Learning

Self-regulated learning is a construct that has repeatedly been connected with both self-efficacy and engagement. Similar to both of those constructs, self-regulated learning has been linked to positive academic outcomes (Boekaerts, Pintrich, & Zeidner, 2005; Lavasani, Mirhosseini, Hejazi, & Davoodi, 2011; Mega, Ronconi, & De Beni, 2014). Self-regulated students are "metacognitively, motivationally, or behaviorally active promoters of their academic achievement" (Zimmerman & Martinez-Pons, 1990). Self-regulated learners take ownership of their education and become "masters of their own learning" (Zimmerman, 1990, p. 4). Self-

regulated learning has been shown to have a mediating effect on a student's experience of emotions related to challenges in the academic environment. This helps to explain why a student can have positive feelings toward school but not be academically successful (Mega et al., 2014).

Self-efficacy has been shown to increase after students completed an intervention focused on self-regulation learning skills (Lavasani et al., 2011). Zimmerman (2000) hypothesized that the underlying force behind a student utilizing a particular learning strategy may best be accounted for by self-efficacy. Some scholars have attempted to conceptualize self-regulated learning using terminology from the student engagement literature. For instance, one writer hypothesized that self-regulated learning falls under the umbrella of cognitive engagement while student attitudes and on-task behavior likely are associated with emotional and behavioral engagement, respectively (Fredricks et al., 2004). However, another group of scholars disputed the inclusion of self-regulated learning into the cognitive domain of engagement and pointed out that self-regulated learning has components of the behavioral domain as well (Shui-fong Lam et al., 2014). Regardless, self-regulated learning appears to be closely related to a student's self-efficacy and engagement.

Research on self-regulated learning faces similar challenges to student engagement. The last two decades has brought increased fragmentation of research and has resulted in a large number of new models, theoretical orientations, and vocabulary being used to describe the phenomenon of self-regulated learning (for a full review, see Boekaerts et al., 2005). Pintrich (2004) argues that all models share four phases: (a) forethought, planning and activation; (b) monitoring; (c) control; (d) and reaction and reflection. However, these phases are not always arranged linearly and may not all occur when a student attempts a task. Zimmerman (2005)

argued that each of these phases is ongoing and have to be modified based on the task at hand. As research has grown, interventions and measures have emerged that allow researchers to refine their approach to and target the domains of self-regulated learning (Lavasani et al., 2011; Pintrich, 2004).

Self-Regulated Learning and Patient Activation

Self-regulated learners share many similarities to "activated" patients in the healthcare literature. A primary goal of healthcare is to provide efficacious, cost-effective care for individuals who suffer from a chronic illness. In the last decade, this focus has turned to a patient-centered approach called "patient activation." An "activated" patient believes that they have an important role to play in managing their care, collaborating with providers, and maintaining their health. They have the knowledge necessary to manage their condition, maintain functioning, and prevent health declines. Activated patients are able to convert their knowledge and beliefs into skills and a behavioral repertoire that can be used to manage their condition, collaborate with health providers, maintain their functioning, and access appropriate and high-quality care (Hibbard, Stockard, Mahoney, & Tusler, 2004). This is similar to the cognitive and behavioral patterns of self-regulated learners. Activated patients engage in their treatment and believe that they have the ability to complete the tasks required to improve their health, while a self-regulated learner engages with the challenges of academia and believes in their ability to meet those challenges. By bringing the concept of activation into the educational literature, it will help to bridge the gap between two research bases that have traditionally had little overlap (Maes & Gebhardt, 2005).

The Patient Activation Measure (PAM) was constructed to measure a person's knowledge, skill, and confidence for self-managing one's healthcare, or "activation" (Hibbard et al., 2004). The PAM has repeatedly been shown to be a highly reliable and valid instrument (Fowles et al., 2009; Hibbard et al., 2004; Skolasky, Mackenzie, Riley, & Wegener, 2009). Additional studies have shown that high scores on the PAM are related to better health outcomes for a variety of illnesses: HIV, diabetes, and heart failure (Marshall et al., 2013; Remmers et al., 2009; Shively et al., 2013). Conversely, low scores on the PAM were related to higher individual health care costs (Hibbard, Greene, & Overton, 2013). Hibbard et al. (2013) were able to condense the original 22-item PAM into a shorter, 13-item version while maintaining its psychometric integrity (Hibbard, Mahoney, Stockard, & Tusler, 2005). In recent years, the PAM has been adapted for use in the fields of mental health and higher education; both versions have respectable psychometric properties and were predictive of successful outcomes in their respective fields (Green et al., 2010; Kinder, 2008).

Hibbard and colleagues were able to construct a multilevel, developmental approach to measuring activation by using Rasch analysis to create the PAM. Using a PAM score, an individualized treatment plan can be developed that focuses on improving the patient's activation (Hibbard et al., 2004).

Kinder (2008) adapted the PAM for use with nursing students in a higher education setting. Her version of the PAM was titled the Student Activation Measure (SAM) but was not designed to have application outside of nursing students. One of her primary goals in creating the SAM was to help nursing programs improve the academic success of their students and facilitate higher rates of passing the National Council Licensure Examination for Registered Nurses

(NCLEX-RN). As part of her study, she defined student activation as "a level of engagement in learning and self-management that a student has in reaching his or her academic goal" and created a model of student activation to conceptualize the factors underlying activation (Kinder, 2008, p. 50). As hypothesized, her measure was significantly, positively correlated with participants' feelings of mastery, cognitive adaptation, resilience, hardiness, self-esteem, and patient activation. She also hypothesized that student activation would be significantly, negatively correlated with psychological vulnerability, which was supported by the results. Each of these constructs has been shown by previous research to be related to a student's academic success (Kinder, 2008). Her research produced a reliable, valid instrument for identifying nursing students who were at risk for failure; however, it lacked applicability to students in other settings. An additional limitation of the study was that it relied on classical testing theory rather than Rasch modeling, a method similar to item response theory. To date, no other researcher has attempted to modify the PAM for use in an academic setting.

In 2011, Michael Fulop and Antonia Forster obtained a research license from Insignia Health to modify the PAM for use in secondary education settings. Their goal was to create a short, positively worded measure that would be useful in the guiding and monitoring the intervention efforts of professionals whom worked with struggling students. An activated student was defined as a student who has the knowledge, skills, and confidence to self-manage their education. This definition is the organizing principle of the SAM items. The measure has been given on an informal basis to a clinical sample of high school and junior high students in order to begin to determine its feasibility. In early usage, the SAM has yielded information that appears to be useful in conceptualizing at-risk students. The current version of the SAM features several

new items that were created in collaboration with Judith Hibbard in order to insure fidelity with the construction of activation.

In order for the instrument to be useful when working with students of different ages, I will be using Rasch analysis to explore if items operate differently for students in various settings and levels of academia. This insures that items will be sample independent and allows us to confidently convert the scores obtained from ordinal items into interval-level data. Additionally, I will examine the SAM's reliability, criterion validity, and construct validity. Examining the items fit with the Rasch model will establish the reliability and construct validity of the instrument. Rasch is a useful tool in establishing construct validity because "items that fit are likely to be measuring the single dimension intended by the construct theory (Baghaei, 2008, p. 1146)." Criterion validity, specifically predictive validity, will be assessed through examining the academic records of college students that complete the measure.

Chapter 2

Methods

Participants

A total of 603 students (330 males, 262 females, and 11 other gender) from two high schools located in the Pacific Northwest completed the measure. The high schools offered contrasting levels of academic success and socioeconomic status. Three hundred and ten participants (51.4%) were freshmen in a mostly upper class, private high school with a history of academic success. The remaining 293 participants (48.5%) were high school students at various grade levels from a school that had not met state academic expectations in the two previous years. Participants' ages ranged from 14 to 19 years of age (M = 15.52, SD = 1.17) and were predominantly freshmen (66.8%) followed by juniors (12.6%), seniors (9.4%), sophomores (9.9%), and unspecified (1.1%). Students identified as, in descending order, European heritage (66.1%), Asian American (8.9%), Unspecified (8.1%), Bicultural (5.9%), Hispanic/ Latino (5.4%), African American (2.4%), Native American (1.6%), Pacific Islander (.8%), and Arabic American (.3%),

Procedure

Both schools notified parents of their student's participation through an advance mailing. The packet included a fact sheet regarding the measure and gave them the opportunity to request that their student not participate. After we explained the purpose of the measures and obtained

student assent, students completed the SAM and demographic questionnaire using either an iPad or paper and pencil. Schools provided student's concurrent grade point average and attendance.

We evaluated the items using Rasch analysis to determine which items scaled, and whether it was possible to create a unidimensional measure. Afterwards, we provided the high school administrations with the data pertaining to their students and debriefed the results. All data was stored in an encrypted database or in a double locked location.

Instruments

Student activation measure. The SAM is a modified version of the PAM that is intended for use with students in a secondary education setting. Its items are positively worded and designed to lead directly into academic interventions. The underlying principles of activation were used to guide item construction. An activated student was defined as a student who has the knowledge, skills, and confidence to self-manage their education. The initial version of the measure included 20 items.

Demographic questionnaire. The demographic questionnaires included age, ethnicity grade level, birthdate, student identification number, father's occupation, father's highest level of education, mother's occupation, mother's highest level of education, and gender. We used the occupational and educational data as a rough estimate of socioeconomic status. Students also self-reported total homework time and productive homework time.

Analyses

Rasch analysis provides a mathematical basis for the creation of interval-level, unidimensional, probabilistic Guttman-like scales from ordinal data (Hibbard et al., 2004; Massof, 2002; Rasch, 1993; Boone, Staver, & Yale, 2014). In this case, each scale item can be

ordered based on the amount of the trait necessary to increase the probability of agreeing with the item. This is termed item "difficulty." Item difficulties reflect how "hard or easy" it is for an individual to endorse an item (Boone et al., 2014). Once item difficulties have been calibrated, a developmental model of activation can be created (Bond, 2007; Hibbard et al., 2004). The concept of item difficulty is central to the creation of Guttman-like scales where agreement with an item signals an increased probability that an individual will endorse the preceding items in a similar manner.

Unidimensionality can be evaluated by measuring the fit characteristics of each item. Infit and outfit are chi-square statistics that are used to describe how well the data fit the Rasch model (Boone et al., 2014). Outfit is sensitive to item responses on items that are at extremes in terms of the difficulty of the item. An example of this could be a set of items on a math test that are susceptible to guessing. Infit is sensitive to responses on items that are similar to an item's difficulty level. Fit values of 1.0 indicate a perfect fit with the model's expectations. A value of > 1.0 is indicative of more stochastic variability than was predicted by the model. Fit values of < 1.0 indicate that persons do not vary as much as the model predicted. Previous studies have utilized cutoffs of .5 and 1.5 to evaluate the acceptability of item fit (Hibbard et al., 2004; Smith, 1996). This study will also evaluate items using these cutoffs.

Chapter 3

Results

Rasch Item Analysis

Initial analysis supported the 4 choice response category structure of each item (Table 1).

Table 1

SAM Response Categories

Category	Times Used	% Used	Infit	Outfit
Strongly Disagree	217	2	1.13	1.19
Disagree	1620	14	.99	1.01
Agree	6798	57	.93	.92
Strongly Agree	3213	27	1.01	.99

Notes. Infit and outfit values of 1.0 indicate a perfect fit with model expectations. Values ranging from .7 to 1.5 signify an acceptable amount of variability in responses.

Item difficulty refers to the amount of activation required for a person to endorse a particular item. Rasch analysis utilizes the logit as a measure of item difficulty. The logit scale is presented in an easily interpretable 0-100 scale where zero is the lowest possible scale location and 100 is the highest possible location. Table 2 shows the items ordered by difficulty.

Table 2

SAM Items Ordered by Difficulty

Item	Difficulty	Count	Infit	Outfit
SAM12	58.8	595	1.05	1.12
Item	Difficulty	Count	Infit	Outfit
SAM16	57.0	589	0.97	1.00
SAM18	53.1	586	1.04	1.07
SAM17	51.5	589	1.01	1.04
SAM19	51.4	593	1.10	1.07
SAM6	51.3	593	1.30	1.30
SAM15	50.0	593	0.74	0.73
SAM3	47.0	596	0.89	0.89
SAM8	46.7	594	0.94	0.94
SAM14	46.5	590	0.76	0.73
SAM9	46.3	594	0.82	0.79
SAM7	45.3	594	1.15	1.11
SAM11	45.3	594	1.00	0.98
SAM20	45.2	592	1.02	0.99
SAM13	45.0	595	0.88	0.87
SAM5	44.5	595	1.13	1.11
SAM10	43.9	590	1.10	1.06
SAM4	42.0	588	0.91	0.90
SAM2	41.9	594	0.96	1.04
SAM1	41.5	594	1.06	1.12

Most items showed excellent fit, except items 6, 9, 14 and 15. With few exceptions, items showed good variability in difficulty.

Reliability

Rasch measurement utilizes two reliability coefficients in order to determine the reproducibility of the results: model and real. Reliability coefficients can range from 0 to 1, with a minimum acceptable value of .7. The SAM showed exceptional model reliability (.91) and real reliability (.90). These values remained the same after deleting item 6, which was the poorest fitting item. Further item deletion caused significant drops in reliability, so the remaining analysis utilized a 19-item version of the scale. Table 3 shows the resulting item difficulties and fit, ordered by difficulty.

Validity

SAM scores ranged from 8.3 to 100 with a mean of 64.94 (sd = 13.91). We broke the data up into three groups to compare student performance on the SAM to homework time, social media usage, gaming time, school importance, desire to change homework behaviors, confidence in ability to change, grade point average and attendance data. Table 4 shows the descriptive statistics of each group: low, moderate, and high. Each group included a relatively similar number of students who had comparable SAM scores. We utilized one-way analyses of variance (ANOVAs) with post-hoc Scheffe tests to further understand the differences between the SAM score groups. Table 5 shows the results of the analysis. Because of the extreme differences between the two schools, we separated the schools' data and repeated the analyses.

Table 3

Resulting SAM Items Values Following Item Deletion

Item	Difficulty	Infit	Outfit
SAM1	41.7	1.09	1.14
SAM2	41.8	0.95	1.03
SAM4	42.2	0.93	0.92
SAM10	44.2	1.13	1.10
SAM5	44.7	1.17	1.15
SAM13	45.0	0.86	0.85
SAM20	45.2	1.01	0.97
SAM7	45.5	1.15	1.11
SAM11	45.5	1.02	1.00
SAM9	46.5	0.82	0.79
Sam14	46.7	0.77	0.74
SAM8	47.1	0.99	0.99
SAM3	47.3	0.91	0.91
Sam15	50.4	0.77	0.75
SAM19	51.7	1.12	1.07
SAM17	52.0	1.03	1.06
SAM18	53.4	1.09	1.12
SAM16	57.6	0.98	1.02
Sam12	59.3	1.07	1.12

Table 4

SAM Score Groupings

Group Level	N	Mean	SD	Minimum	Maximum
Low	188	51.6	6.54	8.3	57.5
Moderate	197	62.19	2.12	59.0	66.0
High	208	79.55	11.33	67.4	100.0

Table 5

Academic Measures in Relation to SAM Group Scores for All Students

	SAM Group				
Variable	Low	Medium	High	Group Diff	Post-hoc
Total Homework	1.64 (1.21)	1.77 (1.15)	2.17 (1.03)	F (2, 582) = 11.65	H>L,M
Productive Homework	1.24 (.974)	1.39 (.882)	1.65 (.827)	F (2, 576) = 10.51	H>L,M
Social Media Time	2.11 (1.34)	1.74 (1.25)	1.53 (1.13)	F (2, 575) = 11.06	L>M,H
Gaming Time	1.62 (1.53)	1.25 (1.40)	.82 (1.10)	F (2, 575) = 17.09	L>M>H
School Importance	4.12 (1.17)	4.65 (.71)	4.90 (.40)	F (2, 577) = 46.53	H>M>L
Desire to change	3.09 (1.29)	2.62 (1.09)	2.30 (1.03)	F (2, 583) = 23.58	L>M>H
Change Confidence	2.81 (1.02)	3.29 (.87)	3.78 (.98)	F (2, 581) = 50.70	H>M>L
G.P.A.	2.90 (.81)	3.19 (.71)	3.44 (.59)	F (2, 550) = 27.55	H>M>L
Absences	.95 (.07)	.94 (.09)	.96 (.05)	F (2, 546) = 4.08	H>M

Note. Total homework, productive homework, social media, and gaming time are reported in hours. School importance is a self-report, Likert item that ranged from "not important" to "very important" (1-5). Desire to change the way you do homework is a self-report, Likert item that ranged from "not at all" to "a whole lot" (1-5). The student's confidence in their ability to change is a self-report, Likert item that ranged from "no confidence" to "very high confidence" (1-5). Total absences is a ratio of days present to total possible attended days with a value of 1 being equal to no absences. The three groups are designated high (H), medium (M), and low (L) SAM scores.

Tables 6 and 7 show the results of those analyses. Analyses resulting in p-values less than .05 were deemed statistically significant. Though repeated use of an alpha of .05 is likely to result in Type 1 error, the pattern of results seen in the following tables suggests systematic differences are present based on differing levels of student activation.

Table 6

Academic Measures in Relation to SAM Group Scores for Low SES School

	SAM Group				
Variable	Low	Medium	High	Group Diff	Post-hoc
Total Homework	1.03 (.94)	1.09 (.90)	1.56 (1.08)	F (2, 281) = 7.65	H>L,M
Productive Homework	.90(.93)	.91 (.70)	1.29 (.88)	F (2, 281) = 5.83	H>L,M
Social Media Time	2.46 (1.34)	2.13 (1.31)	2.07 (1.25)	F (2, 281) = 2.61	No Sig.
Gaming Time	1.98 (1.62)	1.43 (1.58)	1.05 (1.26)	F (2, 281) = 8.76	L>M>H
School Importance	3.76 (1.31)	4.44 (.88)	4.83 (.55)	F (2, 278) = 26.91	H>M>L
Desire to change	2.86 (1.37)	2.53 (.99)	2.26 (1.12)	F (2, 282) = 5.99	L>H
Change Confidence	2.75 (1.13)	3.20 (.92)	3.74 (1.14)	F (2, 280) = 19.57	H>M>L
G.P.A.	2.50 (.81)	2.90 (.83)	3.14 (.74)	F (2, 252) = 13.74	H>L, M>L
Absences	.92 (.08)	.91 (.08)	.93 (.07)	F (2, 252) = 1.30	No Sig.

Note. Total homework, productive homework, social media, and gaming time are reported in hours. School importance is a self-report, Likert item that ranged from “not important” to “very important” (1-5). Desire to change the way you do homework is a self-report, Likert item that ranged from “not at all” to “a whole lot” (1-5). The student’s confidence in their ability to change is a self-report, Likert item that ranged from “no confidence” to “very high confidence” (1-5). Total absences is a ratio of days present to total possible attended days with a value of 1 being equal to no absences. The three groups are designated high (H), medium (M), and low (L) SAM scores.

Table 7

Academic Measures in Relation to SAM Group Scores for Private School Freshmen

	SAM Group				
Variable	Low	Medium	High	Group Diff	Post-hoc
Total Homework	2.55 (.96)	2.47 (.93)	2.51 (.81)	F (2, 298) = .14	No Sig.
Productive Homework	1.74(.81)	1.90 (.77)	1.86 (.72)	F (2, 292) = .96	No Sig.
Social Media Time	1.59 (1.16)	1.32 (1.01)	1.21 (.93)	F (2, 291) = 3.38	L>H
Gaming Time	1.08 (1.19)	1.04 (1.16)	.68 (.96)	F (2, 291) = 4.46	L>H
School Importance	4.65 (.63)	4.87 (.37)	4.94 (.27)	F (2, 296) = 11.87	H>L, M>L
Desire to change	3.41 (1.10)	2.73 (1.17)	2.32 (.97)	F (2, 298) = 24.84	L>M>H
Change Confidence	2.89 (.85)	3.38 (.81)	3.81 (.88)	F (2, 298) = 28.05	H>M>L
G.P.A.	3.41 (.43)	3.45 (.44)	3.61 (.41)	F (2, 295) = 6.68	H>M, L
Absences	.98 (.02)	.97 (.08)	.98 (.03)	F (2, 291) = .42	No Sig.

Note. Total homework, productive homework, social media, and gaming time are reported in hours. School importance is a self-report, Likert item that ranged from “not important” to “very important” (1-5). Desire to change the way you do homework is a self-report, Likert item that ranged from “not at all” to “a whole lot” (1-5). The student’s confidence in their ability to change is a self-report, Likert item that ranged from “no confidence” to “very high confidence” (1-5). Total absences is a ratio of days present to total possible attended days with a value of 1 being equal to no absences. The three groups are designated high (H), medium (M), and low (L) SAM scores.

Chapter 4

Discussion

The purpose of this study was to explore the feasibility of student activation as a construct for further understanding non-cognitive factors contributing to a student's academic success. The SAM was developed in collaboration with the team that validated the construct of patient activation in medical settings, and it appears to be a reliable and valid measure of student activation. Initial Rasch item analysis resulted in the deletion of item 6 and led to a 19-item version of the SAM. This version of the SAM fit well with the expectation of the Rasch model, which indicates high construct validity, and was exceptionally reliable. In both schools, inferential analysis showed that higher SAM scores are associated with significantly higher GPAs, less absences, increased time spent on homework, and less time spent on social media or playing video games. It is important to note that these outcomes (e.g., less social media time) were characteristics of highly activated students and should not be considered causal factors. Within the individual schools, SAM scores are associated with similarly positive student characteristics, although these differences are not as pronounced when the scores are combined from both schools. These findings, joined with the fit statistics, indicate that the measure has a high level of construct and criterion validity.

The constructs of self-regulated learning and student engagement have impressive research bases that have consistently grown over time. However, both face the challenge of increasing fragmentation and have little generalizability to settings outside of academia. Few

studies have attempted to bridge the gap between medical and secondary education settings, even though both settings regularly attempt to modify behavior. Professionals in both settings often face the challenging task of meeting the needs of a large, diverse group. Because of this, efficiency and precision are paramount in insuring the success of any intervention. Previous research has already established the strong link between lower activation scores and higher healthcare costs, while higher scores are associated with better health outcomes (Hibbard, et al., 2013; Hibbard & Greene, 2013). Therefore, a measure of student activation could conceivably be a useful tool for lowering academic costs and improving outcomes.

Hibbard et al. (2005) pointed out that the first step to improving patient care is the development of reliable and valid instruments, and this is also true for improving the performance of struggling students. The Student Activation Measure (SAM) appears to be a valid and highly reliable instrument to measure a student's knowledge, skill, and confidence for self-managing one's academic responsibilities. Compared to other academic measures, the SAM is distinct that it is intended to be used in intervention planning, rather than strictly research. Its 19-item structure allows for rapid administration and scoring. In addition, the positive wording of the items is intended to decrease the reactivity of struggling students who complete the measure and facilitate a motivational interviewing intervention. The items are intended to be non-judgmental and respectful of the student's experience. The goal of this approach is to decrease the social desirability associated with the items. Further research is needed to determine if the item wording had the intended effect.

Similar to the PAM, the SAM has strong psychometric properties and evidences a developmental model of activation. The exceptional reliability findings indicate that the SAM is

a useful tool for working with individual students and comparing the effectiveness of interventions across academic settings. A strength of this study is the highly disparate schools that compose the sample. Even with these differences, the items performed well across settings.

The creators of the PAM have utilized the developmental nature of activation to design individualized interventions, and it is likely that the SAM can be employed in a similar manner. For instance, students with low SAM scores evidenced a strong desire to change but had little confidence in their ability to change. An intervention approach that utilizes a collaborative problem-solving framework might be useful for these students. As a student begins to have success overcoming challenges, their SAM scores should increase in a corresponding manner. Research aimed at further testing the psychometric properties of the SAM and detecting the SAM's sensitivity to intervention is currently underway. The findings of this study indicated a high degree of similarity between the construct of activation regardless of the setting it is measured in.

Future Research

This study is the first study to explore the construct of student activation. There are numerous possible directions for future research. It would be beneficial to replicate this study with the same student population to examine the stability of SAM scores over time and reexamine the relationship between SAM scores and markers of academic success. The students in this sample were socioeconomically diverse but other identity markers may not have been adequately represented, such as ethnicity or gender. Future studies would benefit by intentionally seeking to include students whose identity markers address these gaps. Another possibility is to examine the responsiveness of SAM scores to interventions such as Motivational Interviewing

aimed at improving academic performance. The SAM is explicitly designed to be used in academic interventions and could benefit from the development of a companion measure designed to individualize intervention efforts.

Further research is needed to fully understand the construct of activation as it relates to disorders that impede students from accessing their education, such as ADHD or oppositional defiant disorder. These nuances are unique and more pronounced in an educational setting. The current sample was composed of high school students, and it is unknown if activation is a useful construct for understanding the learning behaviors of students who are not in high school. Because of this, it is possible that additional forms, or refinement, of the SAM may be necessary.

Limitations

This study lacked cultural diversity and future studies would benefit from the intentional inclusion of culturally and ethnically diverse students. In addition, there was a large disparity in the socioeconomic status of the students of the two schools. The inclusion of a third school with more diverse or moderate SES status would have helped to address this disparity. The current version of the SAM is exclusively self-report, and this is a potential limitation of the study. Teacher and parent ratings of students would increase our understanding of the construct of activation.

Conclusion

The SAM appears to be a useful and psychometrically sound measure to further understand the learning process of high school students. Because this is the initial study with this construct, there are numerous research possibilities to be explored. A popular approach to education in America utilizes a response to intervention framework designed to quickly identify

and intervene on struggling students. Fortunately, predictive modeling and psychological measures are advancing so that a well-designed screeners can be used in classrooms to identify students with a high probability of failing before they begin to fail, thereby increasing the intervention time allotted to the student and lessening the risk of academic failure. The SAM presents one such opportunity to identify students at risk so that intervention efforts can be developed for struggling students. The SAM, or any such measure, is a step towards an educational system that seeks to meet the needs of it students while valuing the efficient allocation of resources. Further research and collaboration with education professionals will serve to investigate the accuracy of this claim.

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Appendix A

Curriculum Vitae

EDUCATION

Doctoral Degree
Institution: George Fox University (APA accredited)
Name of Degrees:
Master of Arts, Clinical Psychology
Date Awarded: May 2014
Doctorate of Psychology, Clinical Psychology (expected May 2017)
Dissertation Title: From Patient to Student Activation: Development of the Student Activation Measure
Dissertation Defended: April 1st, 2016
Emphasis: Child and Adolescent
Cumulative GPA: 4.0 (Current)

Master's Degree
Awarding Institution: McNeese State University
Name of Degree: Master of Arts, Psychology
Concentration: Experimental Psychology
Date Awarded: May 2011
Thesis Title: An Examination of the Effects of Stigma on Medication Prescription Practices
Cumulative GPA: 4.0

Bachelor's Degree
Awarding Institution: McNeese State University
Name of Degree: Bachelor of Science, Psychology
Minor: Biology
Date Awarded: May 2008
Cumulative GPA: 3.95

CLINICAL AND RELATED EXPERIENCE

Momentous Institute (APA accredited), Dallas, TX, (7/2016-current)
Position: Doctoral Intern
Duties:

- Provide therapeutic services to families in outpatient and school settings
    - Sessions structured based on individual family need and can take the form of individual, family or couples work.
    - Families typically come from European Heritage, Latino, and African American heritages with high rates of trauma
- Provide trauma-sensitive assessment services to children in school and outpatient settings

utilizing behavioral, personality, cognitive, and academic measures.
- Act as early childhood assessment team member during 12-week rotation
    - Administer and interpret assessment
    - Write relevant portions of report
- Participate in weekly family therapy treatment team
    - Treatment modality utilizes traditional family therapy technique of reflecting team and focuses on service delivery to one family
    - Team member responsibilities include acting as co-therapists inside the room with family or observing from behind two-way mirror and offering feedback to family in reflecting session.
    - Treatment team also includes weekly, hour long supervision dedicated to enlarging participant's knowledge of family therapy techniques and conceptualizations
- Attend weekly didactics focused on a variety of topics including working in diverse settings, assessing and treating trauma, and introductions to evidence based practices
- Attend bimonthly assessment seminars on a variety of topics including, but not limited to, utilizing therapeutic assessment techniques, understanding the effects of diversity on the assessment process, and incorporating assessment into treatment
- Provide group therapy services to multi-family and child groups
- Act as consultant/liaison in a K-5th grade setting
- Conduct bi-weekly intakes

Morrison Child and Family Services, Gresham, OR (8/2015-6/2016)
Position: Practicum Therapist
Duties:
- Provide therapeutic services to children, adolescents, and families, clients ages 3-17, European Heritage, Latino, African American, and Pacific Islander heritages with high rates of trauma
- Interfacing with DHS and community support organizations
- Medicaid and insurance billing
- Attendance at bimonthly consultation teams for complex cases including monthly case presentations
- Coordinating care with onsite medical professionals
- Conducting bimonthly new client intakes
- Use of ACORN system to monitor client progress and treatment outcomes

George Fox University Graduate Department of Clinical Psychology, Newberg, OR (9/2013-Present)
Title: Fourth Year Oversight
Duties:
- Oversight of Practicum 1 Psy.D. students
- Fostering development of clinical and assessment skills
- Assist in developing theoretical orientation and personal style of therapy
- Evaluation of student's clinical and professional skills

School Based Behavioral Health, Newberg, OR (9/2014-5/2015)
Position: Behavioral Intern
Duties:

- Develop competency working within systems with multidisciplinary staff, including education staff, autism specialists, and allied professionals.
- Provide therapeutic services to youth, ages 10-13, Low SES, European, Latino, and Asian heritages. Incorporating CBT and ACT based interventions.
- Conduct intake interviews and develop treatment plans to implement empirically supported intervention strategies.
- Implemented crisis intervention including risk assessments and safety planning.
- Provided comprehensive psychoeducational assessments in conjunction with IDEA and IDEIA standards. Integrating cognitive, achievement, neuropsychological, personality, and behavioral measures; ages 5-17, European heritage, Latino, Asian.
- Provide feedback of assessment results to students, families, and professional colleagues.
- Psychoeducation with interdisciplinary staff and families.

Willamette Family Medical Center, Salem, OR (8/2013-7/2014)
Position: Behavioral Health Intern
Duties:

- Individual therapy with children, adolescents and adults (ages 3-89)
- Diverse patient group including LGBTQ individuals, predominantly Caucasian and Latino heritages
- Administered cognitive and personality assessments, primarily to children to guide in diagnosis of ADHD
- Promoting health-related behavior change with clients, such as weight loss and smoking cessation
- Presenting psychoeducational trainings to providers, topics included ADHD and motivational interviewing techniques
- Consultation with medical providers around client's presenting problems and physical health
- Weekly 4 hour "warm handoff" shifts where I administered brief interventions and conducted risk assessments at the request of the provider
- Oversight of implementation of problem alcohol use measure (SBIRT).

Behavioral Health Consultation Team, Newberg, OR (2/2013- 5/2015)
Duties:

- Conduct risk evaluations and crisis management in hospital Emergency Department, ICU, and Medical/ Surgery for individuals at risk of harm to self or others, inability to care for self or psychoses
- Consultation and liaison with medical providers and county mental health workers
- Provide coordination of care: psychiatric hospitalizations, respite, residential, detox, homeless shelters, and community mental health

George Fox University Graduate Department of Clinical Psychology, Newberg, OR (1/2013-5/2013)
Position: Pre-practicum II Therapist
Duties:

- Scheduling and providing weekly individual psychotherapy sessions for two undergraduate clients
- Conducting intake session
- Writing formal intake report and SOAP notes
- Using SRS and ORS to monitor treatment outcomes
- Attend weekly group and individual supervision
- Practicing person-centered techniques

George Fox University Graduate Department of Clinical Psychology, Newberg, OR (9/2012-11/2012)
Position: Depression Management Group Facilitator
Duties:

- Facilitating group conversation regarding positive life choices and recovering from mental illness
- Applying person-centered techniques
- Attend weekly group supervision by advanced student
- Developing group therapy skills
- Collaborating with other graduate students regarding group process and structure

Volunteers of America, Lake Charles, LA (8/2011-6/2012)
Position: Trainer
Duties:

- Providing residential services to individuals with severe mental illness (schizophrenia), predominantly European and African American heritage adults
- Social skills training, medication monitoring, and budget training for residents
- Answering crisis hotline
- Consulting with treatment team in order to aid in achieving positive therapeutic outcomes and encouraging healthier lifestyles.

Medical Resources and Guidance, Lake Charles, LA (12/2008 – 6/2010)
Position: Case Manager
Duties:

- Constructing personalized plans of care for developmentally disabled individuals
- Working with clinicians to develop formal behavior plans to address problem behaviors
- Collaborating with care team to establish goals and allocating state funds to assist client in meeting goals
- Conducting yearly meetings to assess client's needs and appropriateness of goals
- Helping clients to maintain eligibility for state and federal services

TEACHING EXPERIENCE

George Fox University Department of Psychology, Newberg, OR (9/2015-12/2015)
Position: Graduate Teaching Assistant
Course: Statistics
Duties: individual tutoring, course planning, grading, and guest lecturing

George Fox University Department of Psychology, Newberg, OR (6/2015-7/2015)
Position: Graduate Teaching Assistant
Course: Child and Adolescent Therapy and Assessment
Duties: individual tutoring, course planning, grading, and guest lecturing

George Fox University Graduate School of Counseling, Tigard, OR (6/2014-7/2014, 6/2015-7/2015)
Position: Adjunct Faculty
Course: Research Design and Statistics
Duties: semester planning, syllabus creation, assessment creation, lecture, assisting struggling students, office hours, and grading.

George Fox University Department of Psychology, Newberg, OR (9/2013-12/2013, 9/2015-12/2015)
Position: Graduate Teaching Assistant
Course: Advanced Counseling
Duties: group facilitation, grading of assignments, feedback for counseling videos

George Fox University Department of Psychology, Newberg, OR (4/2013)
Position: Visiting Lecturer
Course: Research Methods
Lecture given: Inferential Statistics

McNeese State University Department of Psychology, Lake Charles, LA (9/2010- 7/2012)
Position: Graduate Teaching Assistant transitioned to Visiting Lecturer
Courses taught: Introduction to Psychology, Child Psychology
Duties: semester planning, syllabus creation, assessment creation, lecture, assisting struggling students, office hours, and grading.

CLINICAL TRAININGS

Clinical Team (2013-Present)
George Fox University, Newberg, OR
Description: Consultation group that meets weekly to present and discuss cases from various clinical perspectives

Primary Care/ Health Psychology Training

Intro to Motivational Interviewing Workshop: Michael Fulop, Psy.D. (2/2014)
World Forestry Center, Portland, Oregon

Integrated Primary Care: Brian Sandoval, Psy.D., and Juliette Cutts, Psy.D. (9/2013)
George Fox University, Newberg, Oregon

Screening, Brief Intervention, Referral to Treatment (SBIRT) training (9/2013)
George Fox University, Newberg, Oregon

Child & Adolescent Training

"Face Time" in an Age of Technological Advancement: Doreen Dodgen-McGee, Psy.D. (11/2014)
George Fox University, Newberg, Oregon

ADHD: Evidence-based Practice for Children and Adolescents: Erika Doty, Psy.D. (10/2014)
George Fox University, Newberg, Oregon

Diversity Training

Afrocentric Approaches to Clinical Practices: Danette Haynes, Ph.D. and Marcus Sharp, Ph.D. (1/2013)
George Fox University, Newberg, Oregon

Sexual Identity: Erica Tan, Psy.D. (11/2012)
George Fox University, Newberg, Oregon

Treating Gender Variant Clients: Christian Integration: Erica Tan, Psy.D. (10/2012)
George Fox University, Newberg, Oregon

Assessment Training

Learning Disabilities: A Neuropsychological Perspective (10/2014)
George Fox University, Newberg, Oregon
Tabitha Becker, Psy.D

Northwest Psychological Assessment Conference (5/2013)
- Using Tests of Effort in Psychological Assessment: Paul Green, Ph.D.
- Assessing Mild Cognitive Impairment: Mark Bondi, Ph.D., ABPP

Understanding Mild Cognitive Impairment: Freeman Chakara, Psy.D., ABPP-CN (9/2012)
George Fox University, Newberg, Oregon

Other Related Clinical Trainings

Spiritual Formation and Psychotherapy: Barrett McRay, Ph.D. (3/2015)
George Fox University, Newberg, Oregon

Credentialing, Banking, the Internship Crisis, and other Challenges for Graduate Students in Psychology: Morgan Sammons, Ph.D. (2/2015)
George Fox University, Newberg, Oregon

Evidence Based Treatment for PTSD in Veteran Populations: Clinical and Integrative Perspectives: David Beil-Adaskin, Psy.D. (3/2014)
George Fox University, Newberg, Oregon
ACT workshop: Steven Hayes, Ph.D. (1/2014)
Oregon Conference Center, Portland, Oregon

DSM-V Training, Essential Changes in Form and Function: Jeri Turgeson, Psy.D. and Mary Peterson, Ph.D., ABPP (1/2014)
George Fox University, Newberg, Oregon

The Person of the Therapist: Brooke Kuhnhausen, Ph.D. (3/2013)
George Fox University, Newberg, Oregon

PROFESSIONAL AFFILIATIONS

American Board of Professional Psychology (2015-Present)
Early Entry Candidate

A.P.A. Division 53: Society of Clinical Child and Adolescent Psychology (2015-Present)
Graduate Student Affiliate

Association for Contextual Behavioral Science (2014-Present)
Member

American Psychological Association (2013- Present)
Graduate Student Affiliate

Journal of Health Psychology (2011- Present)
Reviewer

COMMUNITY INVOLVEMENT

Providence Health and Fitness Day (06/2015)
Bullying Awareness and Prevention Booth
Volunteer

George Fox University Graduate Department of Clinical Psychology (8/2014- 5/2015)
Peer Mentor to incoming Psy.D. student

Willamette Family Medical Center (5/2013)
Presentation to Medical Providers and Staff
"An Introduction to Motivational Interviewing"

Juliette's House Child Abuse Intervention Center (9/2012, 2013, 2014)
Serve Day Team Member
Duties: Once per year with the GFU PsyD program, serve the Child Abuse Intervention Center by completing labor tasks, such as managing mail duties, washing windows, gardening, grounds work, and painting the facility.

George Fox University Graduate Department of Clinical Psychology (9/2012- 5/2014)
Graduate Student Council Representative

George Fox University Graduate Department of Clinical Psychology (9/2012- 5/2013)
Department Admissions Committee Member

AWARDS AND RECOGNITION

Research Award for Competency in Science and Application
Oregon Psychological Association Conference 2015
Presentation title: Activating race: Impacts of race priming in a predominantly white institution

Finalist Graduate Research Competition
Southwestern Psychological Association Convention 2011
Presentation title: Overmedication: What role does mental capacity play?

Temple Inland scholarship
Date Awarded: 9/2003
Amount Awarded: 1500$

Tops scholarship
Date Awarded: 9/2003
Amount Awarded: 40,000$

McNeese State University
President's Honor List 4 years (2005-2008)

McNeese State University
'Summa cum laude' undergraduate honors

RESEARCH EXPERIENCE

George Fox University Graduate Department of Clinical Psychology (02/ 2012 – 05/2016)
Research Vertical Team Member
Duties: Participate in bi-weekly meetings to discuss, collaborate on and evaluate the design, methodology, and progress of research projects. Present personal dissertation research and progress. Collaborate on group research projects, and discussed research ideas for future projects
Faculty Advisor: Mark McMinn, Ph.D., ABPP

Oregon Commission on Autism Spectrum Disorder Grant
Amount: 3,750$
Position: Project Manager
Goal: identification of mental health professionals involved in the treatment of autism spectrum disorders, supervision of research assistant, creation and monitoring of survey, and data analysis

Publications

McMinn M. R., Goff, B. C., & Smith, C. J. (2016). ACT core processes in faith-based counseling. In J. A. Nieuwsma, R. D. Walser, & S. C. Hayes (Eds.), *ACT for clergy and pastoral counselors*. Oakland, CA: New Harbinger Publications.

Smith, C., Daigle, J., & Hall, R. (2010). Monotony in monogamy: A study of married individuals seeking to have an affair. *American Journal of Psychological Research*, 6(1). Retrieved from http://www.mcneese.edu/ajpr/vol6/AJPR%2010-07%20Smith%20and%20Hall%2003-03%20rev2.pdf

Poster presentations

Smith, C., Lowen, J., Oliver, H. A., Theye, A., Lee, J., Peterson, M., Shoup, R., Drake, G., Spromberg, C., & Ellis, J. (2015, August). *Predictors of success in a graduate clinical psychology program*. Poster presented at the annual meeting of the American Psychological Association, Toronto, ON.

Oliver, H. A., Smith, C., Olsen, D., Lowen, J., Hartman, T., & Song, C. (2015, August). *A training evaluation of county mental health workers participating in a CAMS training*. Poster presented at the annual meeting of the American Psychological Association, Toronto, ON.

Smith, C., Oliver, H. A., Olsen, D., Lowen, J., & Hartman, T. (2015, August). *A comparison of community crisis workers determining suicide risk using case vignettes*. Poster presented at the annual meeting of the American Psychological Association, Toronto, ON.

Nelson, A. L., Gathercoal, K., Taloyo, C., Seegobin, W., & Smith, C. (2015, May) *Activating race: Impacts of race priming in a predominantly white institution.* Poster presented at

the annual meeting of the Oregon Psychological Association, Eugene, OR.

Smith, C. J., Mcminn, M. R., & Greggo, S. P. (2014, April). *The Counseling Progress Check: Internal consistency and construct validity of a biopsychosocial-spiritual rapid assessment instrument*. Poster presented at the annual meeting of the Christian Association of Psychological Studies, Atlanta, GA.

Dilks, L., Ashworth, B., & Smith, C. (2011, April). *A study of seven offenders charged with possession of child pornography*. Poster session presented at the annual meeting of the Southwestern Psychological Association, San Antonio, TX.

Dilks, L., Smith, C., & Ashworth, B. (2011, April). *Profile of drug use among incarcerated juveniles*. Poster session presented at the annual meeting of the Southwestern Psychological Association, San Antonio, TX.

Daigle, J., Wright, R., & Smith, C. (2011, April). *The effects of a fatal accident on crosswalk walking frequency*. Poster session presented at the annual meeting of the Southwestern Psychological Association, San Antonio, TX.

Smith, C. & Hall, R. (2010, April). *Monotony in monogamy: A study of married individuals seeking to have an affair*. Poster session presented at the annual meeting of the Southwestern Psychological Association, Dallas, TX.

Parker, B. & Smith, C. (2010, April). *Studies in interpersonal communication*. Poster session presented at the annual meeting of the Southwestern Psychological Association, Dallas, TX.

Daigle, J. & Smith, C. (2010, April). *Acquisition of heteronormativity*. Poster session presented at the annual meeting of the Southwestern Psychological Association, Dallas, TX.

Thesis

Smith, C. (2011). *An examination of the effects of stigma on medication prescription practices*. Unpublished master's thesis, McNeese State University, Lake Charles, LA.