The Development Of The Scale
Of Educational Attitudes

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ABSTRACT

The Scale of Educational Attitudes (SEA) determines a student's attitude towards school. These attitudes can be separated into four categories: Academically Disinterested, Occupation-Driven, Academically Oriented Scholar, and Profession-Driven Scholar. In phase one of this study, items were written based on the literature. In phase two, a factor analysis eliminated weak items and identified underlying constructs of the scale. Phase three consisted of another factor analysis and validating the scale with established scales. The final phase tested the temporal stability of the SEA using test-retest data. Evaluation of a student's educational attitude can provide insight into further success of a student in his or her educational endeavors.

INTRODUCTION

All educators want their students to do well. Frustration may result when all examples and activities offered to explain concepts yield no greater comprehension from students. This prompts the question: why do some students succeed and other students do not? If smart students understand and the poor students do not, then what makes a student smart? Typically, we think of smart students as the ones who receive A's and B's, but high grade point averages seem to be more of a result than an explanation. If academically mature students succeed while their immature counterparts struggle with the material, then immature students need more guidance and nurturing learning environments, and mature students are more likely to succeed regardless of their learning environment. Nurturance of maturity may therefore be the key to student success.

Maturity as a concept is difficult to characterize, given the judgmental connotation of the term. It is also often used interchangeably with the concept of physical development, but there are no known chronological milestones at which students become better learners. Successful students often appear to be mature students, but the maturity we observe may be better described as a more successful educational attitude. To help a student to improve his or her educational attitude, a tool to measure that attitude is essential.

The goal of this project was to develop a unique scale that measures a student's educational attitude. The scale takes into consideration a student's learning orientation and motivation. It also considers a student's future goals achievement attitude. Learning orientation and motivation refers to the degree to which the students are intrinsically motivated to learn, which directly correlates with whether or not they hold a mastery or performance orientation towards learning (Dev, 1997; Gottfried, 1983; Somuncuoglu & Yildirim, 1999). Students with high future goals achievement would be those who have already started planning their careers and have figured out how their college education can help them to better their career opportunities. Those with low future goals achievement have not started to consider any career plans and do not understand how an education can help them to succeed. Hopefully, once we are able to determine a student's educational attitude with the SEA, we should be able to provide students with more suitable learning environments, either reinforcing their current successful educational attitudes or helping them to improve their educational attitudes and their chances to succeed.

Vallerand and his colleagues (1992) developed the Academic Motivation Scale (AMS) which is based on *l'Échelle de Motivation en Éducation* (Vallerand, Blais, Brière, & Pelletier, 1989). The AMS was the first scale to measure motivation using seven subscales to assess three types of intrinsic motivation (*intrinsic motivation to know,*

to accomplish things, and to experience stimulation), three types of extrinsic motivation (*external, introjected, and identified regulation*), and *amotivation*.

Pintrich, Smith, Garcia, and McKeachie (1993) developed the Motivated Strategies for Learning Questionnaire (MSLQ), a self-report instrument that can assess the motivation and learning strategies of college students. It is based on a cognitive understanding of motivation and learning strategies. The motivation scale studies value, expectancy, and affect. Value refers to the reasons why students engage in an academic task, including intrinsic motivators, extrinsic motivators, and task value beliefs. Expectancy can be described as whether or not the students think they can complete the task. It is measured using perceptions of self-efficacy and control beliefs for learning. Affect was simply the response to a test anxiety scale.

Neither the AMS nor the MSLQ can specifically measure the educational attitudes of students in school, taking into account both their learning orientation and motivation as well as their future goals achievement. It is also important to note the observed increase of students who are in school, not because they love learning but because they know they need a degree to get a job. The job market is growing for people with technical skills and specialized knowledge, and it appears that more companies are requiring college degrees for job positions that once did not need them. Pintrich's MSLQ and Vallerand's AMS do not measure the effect that a changing job market has had on education.

This scale was developed in four phases. Each phase was essentially a small study, containing short introductions, methods, results, and discussions sections.

PHASE 1: INITIAL ITEM CREATION

In order to assess students' educational attitudes, a scale needed to be developed that encompassed both students' learning orientation and motivation as well as their future goals achievement. There would not be a correct answer to any of these items as they should reflect students' genuine opinions about their educational experience.

Method

Participants

The author of this dissertation and two others participated in the initial item creation of the SEA. All of the participants are knowledgeable in the areas of learning orientation and motivation of college students as well as item creation.

Material

The author created three educational attitude groups based on the research of Ames (1992), Ames & Archer (1984), Ames & Archer (1988), Dev (1997), Heyman & Dweck (1992), Pintrich & Degroot (1990), Pittman, Emery, & Booggiano (1982), and Watson (2001) which included the areas of motivation, achievement goals, self-regulated learning, and learning skills. The groups consisted of the Academically Apathetic attitude, the Occupation Driven attitude, and the Scholar attitude.

Students with the Academically Apathetic Attitude are characterized by the following: they see college as an excuse not to grow up; they do not recognize the importance of an education or a degree; they do not do their homework or their reading; they always procrastinate; they are extrinsically motivated to be in school; they are academically undisciplined; and they find school boring.

The students with the Occupation-driven attitude recognize the importance of a degree but not necessarily an education. They see a baccalaureate degree as the best way to get a job. They have some learning skills. They are performance oriented. They find most of their subjects (outside of their major) uninteresting. Also, they have both intrinsic and extrinsic motivations to be in school.

Lastly, the students with the Scholar attitude enjoy learning. They are likely to seek post-graduate degrees. They are mastery oriented. They have good learning skills. They are interested in many areas. They always do their homework and their readings. They rarely procrastinate. They are intrinsically motivated to be in school. They are academically disciplined. They are life-long learners. They also recognize the importance of both a degree and an education. Initially, the three categories were thought to be linear in that students could progress from one group to another as their educational attitudes developed.

Based on the characteristics of the students described in these three categories, the author also compiled a draft of fifty-three potential items. Each item was created based on the literature. All of the items used a seven-point scale, asking participants to rate how true each statement was of them. A score of 1 indicated the statement was never true of the participant, and a 7 indicated the statement was always true of the participant.

Procedure

The participants went over each item together to discuss the clarity of the item, how students in the different categories would respond to each item, and whether the item reflected students' educational attitudes. An unacceptable item would be one that may measure more than one concept. Also, items that described behaviors not specific to attitudes were eliminated.

Through this discussion of items, it was realized that the categories were not linear. Occupation-driven students often try hard in school but not necessarily because they are motivated to learn. Instead, they are driven to get through their schoolwork in order to receive their degree, regardless of whether they adequately learn the material. It seemed logical to posit two orthogonal concepts, one that measured learning orientation and motivation and another that measured future goals achievement. Theoretically, if learning orientation and motivation is depicted along a vertical axis and future achievement is depicted along a horizontal axis, the combined results would fall into one of four quadrants (See Figure 1), determining a student's educational attitude. Thus, combining a Learning Orientation and Motivation Scale with a Future Goals Achievement Scale would create a Scale of Educational Attitudes (SEA).

If students have a low score on both learning orientation and motivation and future goals achievement, they would fall into the lower left quadrant, which can be described as the Academically Disinterested. These students do not seem to recognize the importance of an education or a degree. They treat college as an excuse not to grow up in that they can remain in school instead of having to enter the working world.

Students who have a low learning orientation and motivation score but a high future goals achievement score would fall in the lower right quadrant, and they can be described as having an Occupation-Driven Attitude. These students recognize the importance of a degree but do not necessarily appreciate the importance of an education.

Students who have a high learning orientation and motivation score but a low future achievements goals score would fall in the upper left quadrant. These students have the Academically Oriented Scholar Attitude in that they are intrinsically motivated to learn but do not necessarily plan on applying what they learn towards any type of career. Life Long Learners would probably fall into this category because they are learning solely for the sake of increasing their knowledge base.

Students who have high scores on both the Learning Orientation and Motivation Scale and the Future Goals Achievement scale would hold the Profession-Oriented Scholar Attitude. Their scores would place them in the upper right quadrant. These students also enjoy learning and have a mastery orientation towards their education, but they want to apply what they have learned. They are most likely to seek postgraduate degrees because they recognize the importance of both their education and their degree.

Results

    With this new theory, the fifty-three items were refined. A total of eighteen items were eliminated because they did not accurately reflect any of the four attitudes.

Discussion

    The realization that educational attitudes were best described by using two orthogonal concepts restructured the SEA. It is possible for students to advance or decline on both the Learning Orientation & Motivation subscale and the Future Goals Achievement subscale as their educational attitudes change in college. The four categories (Academically Disinterested, Occupation-driven, Academically Oriented Scholar, and Profession-driven Scholar) adequately represent the different attitudes that have been observed in today's college student.
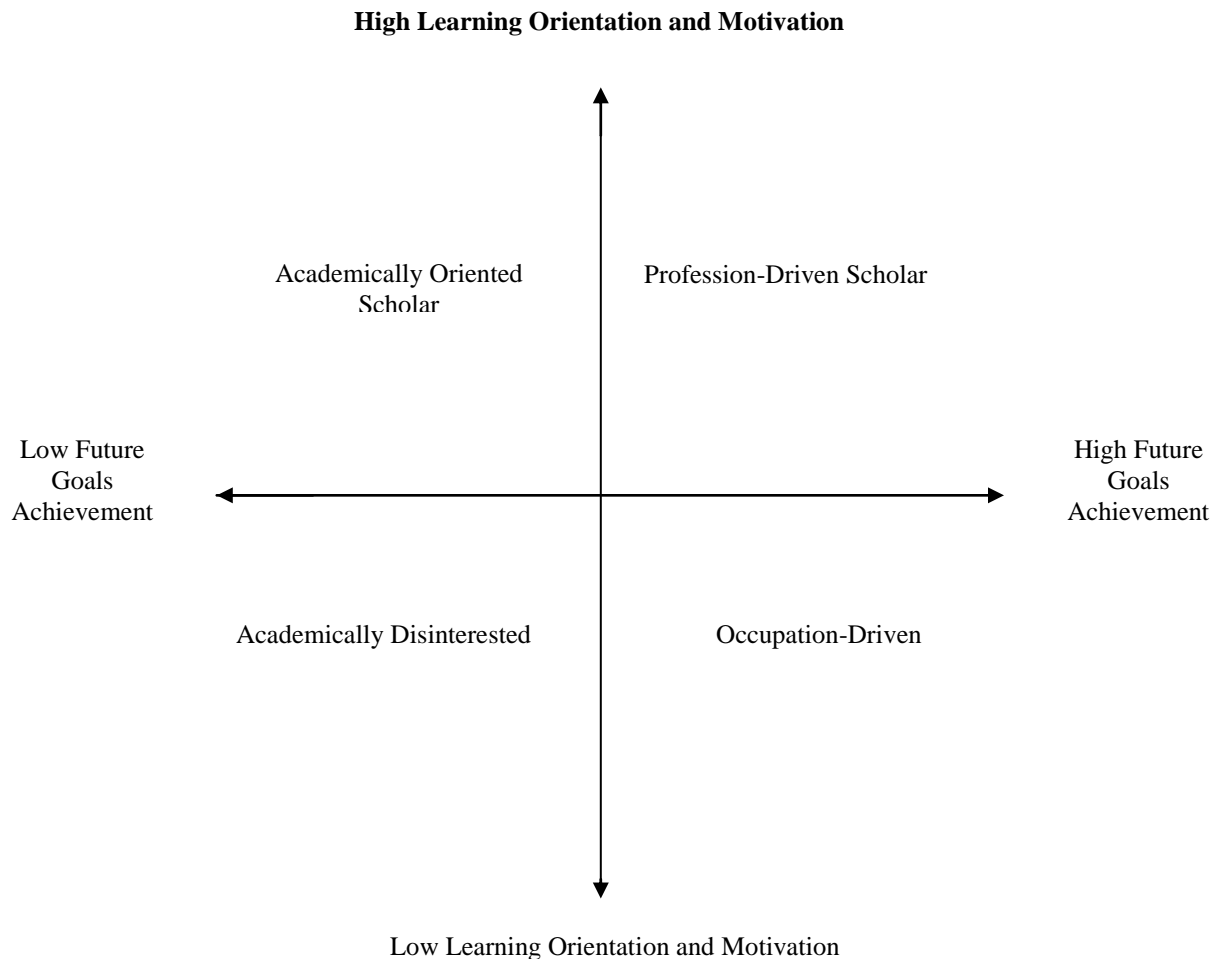
Educational Attitudes

High Learning Orientation and Motivation

Figure 1

PHASE 2: EXPLORATORY FACTOR ANALYSIS OF THE SEA

In this phase, the thirty-five items of the SEA were given out to participants to determine which items were psychometrically weak and to remove them. The results of this phase also established the underlying constructs of the SEA. The items were considered psychometrically weak if they correlated above .60 with other items within that factor because a high correlation indicated that the items were basically measuring the same concept. An item was also considered weak if it loaded over .30 with more than one of the other factors because that indicated that the item was probably measuring more than one factor.

Method

Participants

The participants in this phase of the study were 366 students enrolled in the Psychology 100 Unit Mastery Program at the University of Hawaii at Manoa during the Spring 2003 semester. The participants varied in several aspects. Their ages ranged from 17 to 47 (Mean = 19.5, SD = 2.4). There were 207 freshmen (57.0%), 94 sophomores (25.9%), 34 juniors (9.3%), 25 seniors (6.8%), and 2 graduate students (.5%). There were 160 male participants (43.7%) and 206 female participants (56.3%). Only 201 of the participants (54.9%) declared a major, as opposed to the 165 (45.1%) who did not.

Material

The questionnaire packets consisted of two informed consent forms (one copy to be retained by the participant), the thirty-five-item SEA, and a short demographics page.

Procedure

The student leaders of the active-learning labs of the Psychology 100 Unit Mastery Program were each given instructions, including a speech to recite verbatim to their students. The speech explained the nature of the study, benefits and compensation for the students (one bonus point), as well as a possible alternate activity to complete should the student choose not to participate in the survey. The leaders were instructed to pass out the survey to the students during the remainder of the lab (approximately fifteen minutes), to collect the survey packets, to administer a bonus point, and also how and where to return the packets once they were completed.

Results

The results of the Kaiser-Mayer-Olkin Measure of Sampling Adequacy was .857, suggesting that the distribution of values was more than adequate for conducting a factor analysis. A varimax orthogonal rotation factor analysis with a principal component analysis extraction method indicated that there were eight underlying factors that we identified as: (a) joy of learning/intrinsic motivation, (b) future career, (c) boredom, (d) extrinsic motivation, (e) no future concern, (f) doing what is interesting, (g) planning ability, and (h) graduate school. All of the factors conformed to the theories on learning orientation and motivation and future goals achievement except the final factor (graduate school). The two items that loaded highly with this factor (Items 20 & 21) were designed to differentiate between intrinsic and extrinsic motivators to take post-baccalaureate classes. However, the term "graduate school" in the items seemed to have an effect which overpowered the content of the items, resulting in their loading under a separate category altogether. The seven remaining factors accounted for 56.02% of the variance.

Of the thirty-five items in this version of the SEA, two items were eliminated because they were psychometrically weak. Item 1 ("I enjoy learning") was eliminated because it had a correlation of .66 with item 23 ("I think it's exciting to learn new things"). Such a high correlation suggested that the items were not unique. Item 14 ("When I take a test, I am mostly concerned with how well I did compared to others in my class") was eliminated because it loaded at least .30 on two factors in addition to its own factor. Since this item loaded on too many of the

factors, it was most likely not measuring a single idea. Eighteen items remain on the Learning Orientation & Motivation subscale, and fifteen items remain on the Future Goals Achievement subscale.

Discussion

The results of this factor analysis were promising. Although there were some items that needed further attention, the items primarily loaded where it had been intended for them to load. Of the seven remaining factors identified by the factor analysis, four factors (joy of learning/intrinsic motivation, boredom, extrinsic motivation, and doing what is interesting) are mainly comprised of items from the learning orientation and motivation subscale. The remaining three factors (future career, no future concern, and planning ability) are mainly items from the future goals achievement subscale.

The eighth factor identified in the factor analysis was most surprising. Apparently, the mention of the term "graduate school" affected the responses on the scale.   Since diction had presumably created that factor, it was decided that for the next phase of the SEA, items 20 and 21 would be reworded. Instead of mentioning graduate or professional school, the stems of the items were worded: "I would like to take more classes after I graduate …" so as not to influence the participants unintentionally. It was also decided that the items 13 and 15 could have a similar diction problem in the future, even though it had not happened in this phase, because the stems of both those items begin, "When I take a test …." One of the items was reworded to use the word "exam" instead.

The items of this version of the SEA were ordered in the manner that they had been created, often meaning that items that measured similar concepts were consecutive. In order to avoid any possible order effects in the future, the remaining thirty-three items of the SEA were placed in random order.

PHASE 3: FACTOR ANALYSIS & VALIDATION WITH OTHER SCALES

The purpose of this phase of the study was to run another factor analysis to test the revised scale and to determine the underlying constructs. In addition, the SEA was validated using correlations with the Motivated Strategies for Learning Questionnaire (MSLQ) and the Academic Motivation Scale (AMS). It was hypothesized that the MSLQ should positively correlate with the Learning Orientation and Motivation subscale because both scales have items involving intrinsic motivation. The intrinsic motivation scales of the AMS should also positively correlate with the Learning Orientation and Motivation subscale. The amotivation scale of the AMS should negatively correlate with the Learning Orientation and Motivations subscale since the AMS helps to predict school dropout behavior. Finally, the extrinsic motivation scales of the AMS should correlate with the Future Goals Achievement subscale because both scales have items that describe the extrinsic reasons that students attend school. Ideally, neither of these scales should correlate exactly with the SEA; otherwise, the SEA is not succeeding to measure a novel concept.

Method

Participants

In this phase of the study, there were 284 participants, 91.5% attended the University of Hawaii at Manoa (N = 260), 7.0% attended Kapiolani Community College (N=20), and 1.5% attended other UH community colleges or did not specify their college (N = 4). 64.3 % of the participants (N = 142) were students in psychology classes, 27.8% of them (N = 79) were students in Biology 101, and 7.6% (N = 21) attended other classes. There were 75 reported male participants (27.4%) and 199 reported female participants (72.6%). There were 27 freshman (9.6%), 66 sophomores (23.4), 90 juniors (31.9%), 91 seniors (32.3%), and 8 graduate students (2.8). Their ages ranged from 18 to 50 (Mean = 22.7, SD = 4.6), and 89.4% had declared a major (N = 253).

Material

In order to run another factor analysis, the improved and reordered thirty-three item SEA was handed out in this phase, in addition to the Academic Motivation Scale (Vallerand et al, 1992) the Motivated Strategies for Learning Questionnaire (Pintrich, et al, 1993), and some additional behavioral questions to test the predictive validity of the SEA and to gather demographic information. Two copies of the consent form were also handed out.

In addition, a few small validation studies were conducted in an attempt to establish predictive validity. These small studies were to demonstrate that the SEA accurately measures educational attitudes. In the first small study (N = 269), students who attend a lecture class in which attendance was not required were asked what percent of the time they attend class. Academically disinterested students should have a much lower attendance rate than all the other students because they lack motivation and are not concerned with the impact their absence may have on their future.

Since only fifty-five percent of students who start at a college graduate from that school (Weinstein, 1998), another small study (N = 273) was conducted to show the difference between the educational attitudes of freshmen, senior, and graduate students. Freshman students are more likely to have lower future goals achievement scores and lower learning motivation and orientation scores than seniors and graduate students.

Based on Dev's definition of academic intrinsic motivation (1997), a small study (N = 269) was conducted to determine the amount of time students spend preparing for an exam in less challenging courses. Students with higher scores on the Learning Orientation and Motivation scale should spend more time preparing for the exam than other students because the former students would have more intrinsic motivation.

Procedure

With permission of the instructors, the researcher approached participants in their various classrooms and gave a short speech explaining the nature of the study, the possibility to receive participation points or extra credit, and the following rules: Participants had one week to complete the survey. If students did not want to complete the survey, or if they had completed a survey in a previous class, they were given the opportunity to complete an alternative exercise. Students could write a single page, typed, double-spaced essay about their educational attitudes and how those attitudes have changed in the past few years.

Results

The results of the Kaiser-Mayer-Olkin Measure of Sampling Adequacy was .861, suggesting once again that the distribution of values was more than adequate for conducting a factor analysis. A varimax orthogonal rotation factor analysis with a principal component analysis extraction method indicated that there were eight underlying factors. We identified seven of these factors as: (a) intrinsic motivation, (b) future career, (c) no future concern, (d) doing what is interesting, (e) joy of learning, (f) extrinsic motivation, and (g) class interest. The eighth factor loaded only a single item (11), which theoretically should have loaded under the fourth factor. The seven identified factors account for 56.9% of the variance.

As indicated in Table 1, the Learning Orientation & Motivation (LOM) subscale of the SEA significantly correlated with the MSLQ ($r = .40$, $p < .01$), as well as the intrinsic motivation scales of the AMS ($r = .58$, $p < .01$). The LOM had a negative correlation with the amotivation scale of the AMS ($r = -.43$, $p < .01$). The Future Goals Achievement (FGA) subscale of the SEA significantly correlated with the MSLQ ($r = .15$, $p < .05$) and with the extrinsic motivation scales of the AMS ($r = .47$, $p < .01$). The FGA also had a negative correlation with the amotivation scale of the AMS ($r = -.26$, $p < .01$).

As indicated in Table 2, the LOM subscale had a small but significant correlation with the number of hours a student would spend preparing for an exam in one of their easier classes ($r = .22$, $p < .01$). There was no significant relationship between the FGA subscale and the number of hours a student would spend preparing for an

exam in one of their easier classes. There were also no significant correlations for either the LOM or the FGA subscales and the percentage of time students attended class.

The LOM subscale did have a significant correlation with a student's age ($r = .42$, $p < .01$), and a small but significant correlation with their year in school ($r = .15$, $p < .05$) (see Table 3). Interestingly, there were small negative correlations between whether or not a student had declared a major and both the LOM ($r = -.13$, $p < .05$) and the FGA subscale ($r = -.18$, $p < .01$).

In order to run any further statistics, the educational attitude of each of the participants first needed to be determined. After reversing the scores on the appropriate items as listed in the SEA Key, the Learning Orientation & Motivation subscale score was computed by tallying the scores of the LOM items (as designated in the SEA Key). Since there are eighteen items, the scores could range from 18-126. Next, the Future Goals Achievement subscale score was computed by tallying the scores of the FGA items. With fifteen items in this subscale, the scores could range from 15-105.

Academically Disinterested student would have low scores on both LOM and FGA, which would include participants who scored 72 or lower on the LOM scale and 60 or lower on the FGA scale. Occupation Driven students would have low LOM scores and high FGA scores, including participants with scores of 72 or lower on the LOM scale and 61 or higher on the FGA score. Academically Oriented Scholars would have high LOM scores and low FGA scores, so participants with scores of 73 or higher on the LOM scale and 60 or lower on the FGA scale would fall into this category. Finally, Profession Driven Scholars would have high scores on both scales, which includes participants who scored 73 or higher on the LOM scale and 61 and higher on the FGA scale.

Table 1 Correlations with Established Scales

	Learning Orientation & Motivation	Future Goals Achievement
Motivated Strategies for Learning Questionnaire	.40**	.15*
Intrinsic Motivation Subscales of the Academic Motivation Scale	.58**	.04
Extrinsic Motivation Subscales of the Academic Motivation Scale	-.04	.47**
Amotivation Subscale of the Academic Motivation Scale	-.43**	-.26

*$p < .05$, **$p < .01$, N=284

Table 2 Correlations with Behavioral Measures

	Learning Orientation & Motivation	Future Goals Achievement
Number of hours spent studying for an exam	.22**	.03
Percentage of time students attended class	.12	.07

**$p < .01$, N=269

Table 3 Correlations with Demographic Information

	Learning Orientation & Motivation	Future Goals Achievement
Year in school	.15*	.03
Age	.42**	.06
Major	-.13*	-.18*

* $p < .05$, **$p < .01$, N=273

A one-way ANOVA (see Table 4) determined that a student's educational attitude (academically disinterested, occupation driven, Academically Oriented scholar, profession-driven scholar) had a significant effect on the number of hours that a student would spend preparing for an exam ($F(3, 265) = 4.60$, $p < .01$). A Tukey HSD posthoc test showed a significant difference between occupation driven students and both academically disinterested students as well as profession driven scholars.

Another one-way ANOVA (see Table 5) showed that a student's year in school had a significant effect on a student's LOM subscale score (F (4, 268) = 2.74, $p < .05$). A Tukey HSD posthoc test showed a significant difference between graduate students and both freshmen and sophomore students.

Discussion

The seven underlying factors were almost identical to the seven factors identified in the previous phase of this study, with the exception of class interest. In Phase 2, boredom was the one of the seven factors, which was absent in this phase. The most interesting factor loading was for item 28 ("I know exactly what I want to do for a living"), which loaded under the factor designated "No future concern." Although it seems contradictory that this item would be in the same category as item 6 ("I am in school because I do not know what I want to do in the future"), it is quite possible that students who know exactly what they want to do for a living have no future concern because they feel secure in their plans for the future, thus not being worried about what may happen.

Item 11 ("I take whatever class I find interesting, even though it may not prepare me for the future") was the only item to load under factor eight. Theoretically, the item should have loaded under factor four: "Doing what is interesting." Rewording the item for future use may be suggested, since the item did not otherwise meet standards for elimination.

The small but significant correlations between the Learning Orientation and Motivation (LOM) and Future Goals Achievement (FGA) subscales with Pintrich's Motivated Strategies for Learning Questionnaire (MSLQ) and Vallerand's Academic Motivation Scale (AMS) are noteworthy. As predicted, the LOM subscale correlated with Pintrich's MSLQ and the intrinsic motivation scales of Vallerand's AMS. The FGA subscale also correlated with Pintrich's MSLQ, as well as the extrinsic motivation scales of Vallerand's AMS. These results show the convergent validity of the LOM and FGA subscales in that they do seem to measure what they were what they were designed to measure. However, since the correlations are small, the scales are not identical, thus implying that the subscales are unique.

Divergent validity was established in that the LOM subscale did not have a significant correlation with the extrinsic motivation scales of Vallerand's AMS, nor did the FGA subscale correlate with the intrinsic motivation scales of the AMS. In short, the subscales of the SEA did not measure traits that they were not expected to measure.

The predictive validity of the LOM subscale was also established in the small behavioral measure regarding the number of hours a student would spend preparing for an exam in an easier course. Although the FGA subscale did not have a significant correlation with this measure, the predictive validity of the SEA overall also seems to be established because a student's educational attitude had a significant effect on this behavioral measure. The significant differences between the occupation-driven students and both the academically disinterested students as well as the profession-driven scholars make logical sense. The academically disinterested student lacks the future goals achievement of the occupation driven student, whereas the occupation driven student lacks the intrinsic motivation and mastery orientation of the profession driven scholar.

The only possible problem with these results was that they could be distorted due to an unequal number of participants in the educational attitude categories. When gathering data, the percentage of under and upper class participants represented was not equal because of the last minute loss of a few large introductory classes. Having a considerably larger number of seniors with declared majors may have skewed the educational attitude categories. There were 191 students who fell into the Profession-driven scholar category (71.0%), 61 students in the occupation driven category (22.7%), 11 students in the Academically Oriented scholar category (4.1%), and only 6 academically disinterested students (2.2%). It is also possible that the students approached to be participants who would have fallen into the academically disinterested category did not choose to complete the survey packet.

In the smaller study that measured the percentage of time students attend class, there were no significant correlations between either of the subscales and attendance. The most likely reason for this lack of effect was that the students were asked to self-report how often they attended class. In addition to the basic possibility of the self-

serving bias, students may not have used an accurate method to determine their percentages of attendance. Students who reported that they attended class 99% of the time, probably meant that they only missed one class, which during a semester long course that meets twice a week for approximately fifteen weeks would actually be closer to 96%. Also, students who attended class infrequently may not have been present to receive the survey.

Table 4 Analysis Of Variance: Effect Of Educational Attitude On Hours Spent Studying

	Sums of Squares	df	Mean Square	F	Sig.
Between Groups Within Groups Total	199.800 3840.858 4040.658	3 265 268	66.600 14.494	4.595	.004

TUKEY HSD Post Hoc Test

(I) Educational Attitude	(J) Educational Attitude	Mean Difference (I-J)	Std. Error	Sig.
AD	OD	4.44*	1.63	.034
	AOS	1.95	1.93	.743
	PDS	2.79	1.58	.290
OD	AD	-4.44*	1.63	.034
	AOS	-2.49	1.25	.192
	PDS	-1.65*	.56	.018
AOS	AD	-1.96	1.93	.743
	OD	2.49	1.25	.192
	PDS	.839	1.18	.893
PDS	AD	-2.79	1.58	290
	OD	1.65*	.56	.018
	AOS	-.839	1.18	.893

*The mean difference is significant at the .05 level, AD=Academically Disinterested, OD=Occupation Driven, AOS=Academically Oriented Scholar, PDS=Profession Driven Scholar, N=269

As predicted, both age and year in school did seem to have a significant correlation with scores on the LOM subscale. The significant difference between year in school and the LOM subscale scores suggest that graduate students are more likely to be intrinsically motivated and have a mastery orientation toward learning when compared to undergraduate students in their first couple of years.

It seems contradictory to the theories presented that there were negative correlations between both of the SEA subscales and students having declared majors. Although significant, both correlations were rather small, accounting for an even smaller percentage of the variance. One possibility for these results could be that students declared majors due to academic policies, regardless of their educational attitudes or their interest in a subject area.

Overall, the results of this phase were as expected. That the underlying factors for this phase were so similar to those in the previous phase suggested that the changes in the items were effective but not excessive. The graduate school factor in Phase 2 did in fact disappear in this phase. The repetition of the factors of the SEA show reliability. The significant but small correlations with the established scales assessed the convergent validity of the SEA, yet confirmed its unique addition to field. The predictive validity of the scale seems to have been established, although it would be advised to test the predictive validity again at a future date when the educational attitudes are more adequately represented.

Table 5 Analysis Of Variance: Effect Of Year In School On Learning Orientation & Motivation Score

	Sums of Squares	df	Mean Square	F	Sig.
Between Groups Within Groups Total	2107.054 51441.338 535483392	4 268 272	526.763 191.945	2.744	.029

TUKEY HSD Post Hoc Test

(I) Year in School	(J) Year in School	Mean Difference (I-J)	Std. Error	Sig.
Freshman	Sophomore	.51	3.28	1.00
	Junior	-2.20	3.14	.956
	Senior	-3.17	3.14	.850
	Graduate	-15.63*	5.63	.046
Sophomore	Freshman	-.51	3.28	1.00
	Junior	-2.72	2.29	.758
	Senior	-3.69	2.28	.489
	Graduate	-16.14*	5.20	.018
Junior	Freshman	2.20	3.14	.956
	Junior	2.72	2.29	.758
	Senior	-.97	2.08	.990
	Graduate	-13.42	5.11	.069
Senior	Freshman	3.17	3.14	.850
	Sophomore	3.69	2.28	.489
	Junior	.97	2.08	.990
	Graduate	-12.45	5.11	.109
Graduate	Freshman	15.63*	5.63	.046
	Sophomore	16.14*	5.20	.018
	Junior	13.42	5.12	.069
	Senior	12.45	5.11	.109

*The mean difference is significant at the .05 level. N=273

PHASE 4: TEST-RETEST RELIABILITY

Now that the validity of the SEA has been established, the final phase of this study was to measure whether the SEA had temporal stability. Test-retest data was collected to measure reliability.

Method

Participants and Material

Thirty-five students attending a Theories of Personality psychology course (Psy 260) at the University of Hawaii at Manoa during the first summer session of 2003 participated in this phase of the study. The thirty-three item SEA used in Phase 3 of this study was also used for this phase of the study, as well as two copies of a consent form.

Procedure

The investigator explained the overall purpose of the study, as well as the purpose of test-retest analyses to be conducted in this phase. Students were given ten minutes to complete the survey in class or to write a paragraph on their educational attitudes. All students chose to complete the survey.

One week later, the investigator returned. The purpose of the study was reiterated. Students were once again given ten minutes to complete the survey or to write a paragraph on their educational attitudes. Again, all

students chose to complete the survey. Students who participated in both halves of the study received one extra credit point toward their final grade in the class, in addition to the gratitude of the researcher.

Results & Discussion

Test-retest values for the SEA ranged from .84 to .87. The FGA subscale had a score of .84, the LOM subscale had a score of .87, and the overall SEA had a test-retest value of .86. All scores were significant ($p < .01$). The results of this phase suggested that the SEA and its subscales are reliable and show temporal stability.

CONCLUSION

The Scale of Educational Attitudes appears to be a unique assessment of students' true opinions toward school. The combination of the Learning Orientation & Motivation subscale with the Future Goals Achievement subscale creates four categories that span the entire spectrum of students' educational attitudes. It is now possible to have a clear understanding of how a student perceives his or her educational experience.

Once a student's educational attitude can be identified, it can help the instructor to develop a curriculum better suited to the student. Academically disinterested students would benefit from lectures with demonstrations that are unique and relate to something in which they are interested, as well as those that can show them how the classes can be useful later in life. Lessons of this nature should help the students to become more interested in the subject matter as well as to become more future oriented. Since academically disinterested students are unlikely to have the learning skills necessary to read a text effectively, lectures would need to be a part of each lesson.

Occupation-driven students in classes within their major will already understand that the material directly relates to their future. However, they could benefit from memorable lessons in that the students can learn that their work can be interesting as well as financially beneficial. Occupation-driven students in classes outside their major will most likely be able to benefit from the same type of lessons as the academically disinterested students because electives and general core requirements are often thought to be superfluous.

Students who fall into either of the scholar categories already find the material intrinsically motivating. Demonstrations and lectures are probably not as necessary and could make way for discussions and other student motivated projects. Realistically, any given class will have students who fall into every one of these quadrants. One approach to this would be to tailor the learning environment to the educational attitude that fits the majority of the students. Another approach would be to use different teaching methods on different days throughout the term. Future studies could be conducted to measure the effectiveness of these two different approaches.

Overall, the SEA could also be useful in helping to decide which type of college students should attend. Academically disinterested students should probably attend colleges with smaller classes so that the students can interact with the instructor more often. They could also benefit from colleges that are job oriented so that the relevance of the class will be more obvious. Academically disinterested students would probably do well in community colleges or vocational schools. They could possibly succeed in larger universities if they attended courses with smaller class sizes.

Occupation-driven students could probably do well in larger, liberal arts colleges and universities. Although they would definitely succeed in vocational schools as well, the exposure to interesting and useful elective classes may broaden their knowledge base and increase their intrinsic motivation to learn.

Both the academically oriented and profession-driven scholars would benefit from smaller, honors-type colleges. Since these students are probably already motivated to learn, even the basic introductory classes that would normally be taught in a lecture style at a regular university could be taught in a more discussion-centered environment. When these students are able to take an even greater role in their education, they will be able to develop even deeper understanding of the material.

It is possible that some students will have difficulty succeeding in school, regardless of their environment. However, since the goal of all educators is for their students to do well, it seems prudent that we put forth the extra effort to help students to increase their intrinsic motivation or improve their future goals orientation, thereby helping them to change their educational attitudes.

A future application of the SEA would be to figure out why students fit into particular categories. If we can understand the exact reasons that a student is academically disinterested, for example, maybe we can find specific ways to help the student to change his overall attitude and become interested in his education. It would also be helpful to discover what the contributing factors may be, such as high school or family experiences, which influence a student to hold a specific attitude.

Another possible direction for the SEA would be to develop a scale directed toward high school students. Were a student to know his or her educational attitude before choosing colleges, students might be better equipped to pick a school more suited to their learning styles. In addition, while smaller liberal arts colleges can safely assume that they know the educational attitudes of the students they enroll, some other larger colleges and universities may be interested in determining the general educational attitude of their student body. As the job market continues to influence students' educational goals, changes in curriculum may need to be addressed.

With the development of the Scale of Educational Attitudes, and the distinction of the four educational attitudes, it should now be possible for educators to adequately assess students' perceptions of their educational experiences. The better we understand our students, the greater our chances of helping them to learn.

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