

Fun and Function? The Impact of Experiential Learning Styles on Hedonic and Utilitarian Values in Classrooms

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ABSTRACT

This study examines how components of experiential learning styles influence the hedonic and utilitarian values of classrooms in higher education. These values are argued to impact on emotions and learning outcomes. A survey was employed with university students in different universities. Findings show concrete experience has a positive impact on both hedonic and utilitarian values. These findings emphasize that those students that score higher on the concrete experience scale tend to consider classrooms as more important regarding their utilitarian and hedonic values. These students are suggested to be more influenced by experiential designed classrooms that impact their learning outcomes.

Keywords: Hedonic and utilitarian values; Higher education; and Learning styles

Teaching in the classroom is mostly based on visual presentations combined with verbal cues in written or spoken form (Irvine Clarke, Flaherty, & Yankey, 2006). Despite all students preferring to learn differently, experiential learning methods have received substantial interest from academics and educators (Brennan, 2014). Research of experiential learning methods have so far followed a particular pattern departing from Kolb's experiential learning theory (Kolb, 2014). While the concept of learning styles is criticized for grouping students in categories (Kirschner, 2017), individuals

have different nuances of all the learning styles rather than being imprisoned in just one. Manolis, Burns, Assudani, and Chinta (2013) tried to assess this issue by constructing a scale encompassing all different learning styles.

Although research has demonstrated the importance of implementing experiential learning (as a tool) by teachers, the relationship between the atmosphere in educational settings, such as classrooms and students learning style has been overlooked. The learning environment in educational settings, where students spend time listening, reading and watching presentations, should be adapted to the preferences of students and teachers (Baylor & Ritchie, 2002; Bitter & Pierson, 2001) to become meaningful (Nevison, Drewery, Pretti, & Cormier, 2017). The atmosphere in these environments can have either a positive (Ames, 1992; Barrett, Zhang, Moffat, & Kobbacy, 2013) or a negative impact on individuals. (Babisch, Fromme, Beyer, & Ising, 2001; Houtman, Douwes, Jong, Meeuwsen, Jongen, Brekelmans, Nieboer-Op de Weegh, Brouwer, Bossche, & Zwetsloot, 2008). Additionally, spatial theories demonstrate the apparent impact environments have on the concentration and health of people (Fisk, 2000; Lai, Mui, Wong, & Law, 2009), which also can impact on learning (Barrett et al., 2013).

Sensory cues, visual, auditory, olfactory and tactile, have in these environments been shown to raise levels of engagement, thus facilitating and enhancing the cognition, emotion, recall, judgements and learning of individuals (Atkinson & Shiffrin, 1968; Deliza & MacFie, 1996; Donovan & Rossiter, 1982; Fraser, 2015). Thus, it is crucial to consider classrooms when constructing an appropriate physical atmosphere for students to optimally engage their senses in (Shams & Seitz, 2008).

A vital alternative concept for learning in classrooms concerns whether students perceive classrooms as hedonic or utilitarian. These two concepts explain whether classrooms are experienced as functional (utilitarian) or as experiential (hedonic) (Voss, Spangenberg, & Grohmann, 2003). The concept of utilitarian and hedonic-oriented values has been absent in pedagogical literature, especially regarding classrooms, which is remarkable, since these constructs have shown to be of emotional and behavioral importance (Babin, Darden, & Griffin, 1994; Ballantine, Jack, & Parsons, 2010). Moreover, hedonic and utilitarian values and learning outcomes can be compared to the relationship between experience and learning as discussed in Kolb (2014).

Despite the fact that this study does not measure actual learning outcomes, the relationship is still important to highlight in order to understand why utilitarian and hedonic values are imperative for learning (see Kort, Reilly, & Picard, 2001; Pekrun, 1992). While research has clearly shown that environments have an impact on individuals' memory and emotions (Nevison et al., 2017), no pedagogical research has yet considered whether learning styles impact hedonic and utilitarian values of classrooms in higher education.

In similarity with learning styles, individuals have various preferences for hedonic and utilitarian values. Thus, it is expected that

learning styles have a positive relationship with hedonic and utilitarian values in classrooms. Understanding this becomes extremely important when designing classrooms, platforms or virtual settings, and can aid architects, interior designers, teachers in higher education to design more pleasant and learning-friendly atmospheres.

To address these issues, this study aims to examine how learning styles influence hedonic and utilitarian values of classrooms in higher education. This study contributes to higher education literature, showing how students' preferences of cues and learning impact their experiential perception of classrooms, subsequently argued to be of importance for learning outcomes. Architects, teachers, and managers can utilize the notion of expected hedonic and utilitarian values to combine, investigate and experiment further with learning outcomes.

THEORETICAL FRAMEORK

Students Learning Preferences

Felder and Silverman (1988, p. 674) define that learning styles, “[...] classify students according to where they fit on a number of scales pertaining to the ways they receive and process information”. Kolb and Kolb (2005b) instead describe the individual learning preferences relevant to different phases in the learning cycle. In similarity with Keefe (1979) this paper considers learning styles as stable indicators of how students perceive, interact, and respond to the atmosphere in the educational setting. In summary, these definitions explain different learning preferences, leading to cognitive and affective responses in higher education (Gray, Peltier, & Schibrowsky, 2012) from the classroom design (Cheryan, Ziegler, Plaut, & Meltzoff, 2014).

Research shows that students who match their learning style to the environment, have better academic performance (Boyle, Duffy, & Dunleavy, 2003; Dunn, Griggs, Olson, Beasley, & Gorman, 1995). However, a mismatch between professors' and students' learning styles have shown to create bored and unmotivated students in environments (Felder & Silverman, 1988). Additionally, the incongruity between learning styles and language has been shown to cause problems in education and learning (Felder & Henriques, 1995). Therefore, it becomes important to match teaching methods in relation to the external environment to enhance the capabilities of students.

Learning styles have been a hot topic in the interdisciplinary and pedagogical literature during the last four decades, with many different types being discussed (Cassidy, 2004). Although criticism has been raised against learning style theory, as to simplifying matters (Cassidy, 2004; Curry, 1990; Loo, 2004; Reynolds, 1997), several inquiries have attempted to question the validity and reliability of them (Dunn et al., 1995; Felder & Spurlin, 2005; Holman, Pavlica, & Thorpe, 1997; Hopkins, 1993; Vince, 1998). While some support the validation of learning styles (Enns, 1993), others raise concerns (Pashler, McDaniel, Rohrer, & Bjork, 2008; Reynolds, 1997).

This paper employs the context of Kolb and Kolb's Experiential Learning Model (ELM) (Kolb & Kolb, 2005a) which is one of the most employed and considers four elements as a cycle of learning, where these four elements are two dimensional. Each of these should be present for comprehensive learning to take place; concrete experience (CE), reflective observation (RO), abstract conceptualization (AC) and active experimentation (AE) (Loo, 2004). These elements have been further modified in Manolis et al. (2013), which modified Kolb and Kolb's scale to a continuous one, covering three factors instead of four. Reflective observation & active experimentation concerns students observing teachers and then applying theories to make sense of the observations to solve a problem or make a decision. Concrete experience refers to students reinterpreting a previous experience or encountering a new situation. Lastly, abstract conceptualization concerns student reflection such as constructing new theories to explain prior observations (Kolb & Kolb, 2005b).

Within these three, four major learning styles are identified: accomodator, converger, diverger, and assimilator. Their properties are considered to have different strengths and weaknesses (Kolb & Kolb, 2005a; Manolis et al., 2013). The accomodator uses both concrete experience and active experimentation to enhance learning. The converger instead uses active experimentation and abstract conceptualization. The diverger uses concrete experimentation and reflective observation. Lastly, the assimilator uses abstract conceptualization and reflective observation (Kolb & Kolb, 2005b).

With regard to the learning styles of students, Kolb and Kolb (2005b) additionally discuss physical spaces where learning occurs. Although being part of a larger context, they define them also as learning spaces. These spaces should, for the best outcome, be compatible with the learning styles of the students. When dividing these spaces into cues, they should also be congruent with the preferences of individuals and each other (Barrett et al., 2013) to achieve positive outcomes for students (Parker, Myers, Higgins, Oddsson, Price, & Gould, 2009).

Hedonic and Utilitarian Values

Utilitarian and hedonic components of attitude and value have been discussed in various disciplines, such as psychology, economics, marketing, and sociology, where hedonic dimensions reflect sensation, and the utilitarian ones reflect functional properties (Voss et al., 2003).

More specifically, hedonic and utilitarian values refer to the two major dimensions of attitudes and values. Utilitarian values consider the functional and conscious traits that influence choices and actions in different situations. Hedonic values refer to their aesthetic, experiential, and enjoyment-related traits (Chitturi, Raghunathan, & Mahajan, 2008). Similarly, Batra and Ahtola (1991, p. 159) Batra and Ahtola (1991, p. 159) define these dimensions as, "(1) consummatory affective (hedonic)

gratification (from sensory attributes), and (2) instrumental, utilitarian reasons".

These concepts have been widely employed and examined in marketing and psychology literature (Babin et al., 1994; Ballantine et al., 2010; Chitturi et al., 2008; Dhar & Wertenbroch, 2000; Herz, Beland, & Hellerstein, 2004), and have also been shown to impact on teaching and learning when employed (Myers, 2010). While Cunningham (2016) mentions the blur between learning and consumption in higher education, hedonic and experiential motivations could likewise be argued to fit this notion. These values have been discussed by (Myers, 2010, p. 24) where she states: "Although the learning paradigm via experiential activities has a confirmed influence on classroom and learning outcomes". However, few studies have conceptually incorporated hedonic and utilitarian values in the domain of pedagogy.

Affective traits have in the literature been shown to have an impact on learning. This is shown in a study by (Craig, Graesser, Sullins, & Gholson, 2004), wherein emotional elements such as boredom and its antithesis, flow, seemed to have an impact on learning. Schools spend considerable effort in supporting utilitarian traits in classrooms for aiding the students' concentration, communication and memory (Amedeo & Dyck, 2003; Rosenfield, Lambert, & Black, 1985; Sommer, 1977). Hedonic elements consider instead how emotions can have an impact on motivation, learning strategies, cognitive resources and academic achievement (Pekrun, Goetz, Titz, & Perry, 2002).

Hypotheses Development

The components of learning styles vary in the literature (Cassidy, 2004) and this study employs the Kolb and Kolb (2005b) perspective. As this study recognizes the difficulties of force-choice methods, it employs a continuous scale (Manolis et al., 2013). Manolis et al. (2013, p. 51) further state, "The ability to accurately and efficiently assess student learning styles will allow educators to consider student learning styles when designing curricula and pedagogy. By doing so, educators may be able to increase the effectiveness of their instruction, particularly where experiential learning occurs". Consequently, this means that every student can score more or less on each learning style scale without being considered as a specific learner.

As hedonic values have shown to have an impact on teaching and learning when employed (Myers, 2010), it may influence how students prefer to learn. This suggests that learning styles have a positive relationship with the atmosphere in the educational setting regarding hedonic values, i.e., perceives the given setting as multisensory and emotional (Hirschman & Holbrook, 1982). Therefore, it is logical to assume that experimental learning styles are positively related to hedonic values. In particular, experiential and hedonic values have an impact on learning strategies, cognitive resources and academic achievement (Craig et al., 2004; Pekrun et al., 2002). Thus, it is

argued that the level of experimental learning styles component has a positive impact on hedonic values.

This falls into the following explorative hypotheses:

- H₁: Learning style component, reflective observation & active experimentation, yield a positive relationship on hedonic values.
- H₂: Learning style component, concrete experience, yields a positive relationship on hedonic values.
- H₃: Learning style component, abstract conceptualization, yields a positive relationship on hedonic values.

In similarity with hedonic values, utilitarian values have been demonstrated to have an impact on teaching and learning (Myers, 2010) and this may subsequently influence student learning styles. This indicates that experiential learning styles have an impact on the atmosphere in an educational setting with utilitarian values regarded as being functional and effective (Voss et al., 2003). Specifically, because classrooms are designed with functional values to aid students' learning processes (Amedeo & Dyck, 2003; Rosenfield et al., 1985; Sommer, 1977). This suggests that there is a positive relationship between experimental learning styles and utilitarian values.

Thus, the following hypotheses are developed:

- H₄: Learning style component, reflective observation & active experimentation, yield a positive relationship with utilitarian values.
- H₅: Learning style component, concrete experience, yields a positive relationship on utilitarian values.
- H₆: Learning style component, abstract conceptualization, yields a positive relationship on utilitarian values.

RESEARCH METHOD

Sample and Data Collection

To gather data across different education programs and faculties within universities, an anonymous cross-sectional online survey research design with convenience sampling was employed. This design was employed to investigate the relationship between experiential learning styles on utilitarian and hedonic values in classrooms.

To conduct this, a survey was sent out via email to Swedish students by the university mailing list to covering a wide variety of faculties. In order to access other universities, the description and the link to the survey were sent out to administrators and contacts at other universities. After evaluating the benefits and consequences of online surveys (Van Selm & Jankowski,

2006; Wright, 2005), they were additionally sent out to students via their university email and different university teaching platforms, such as Moodle and Canvas. Participants were required to be current or recent students, more specifically, up to a year after finishing the studies. This was a criterion for inclusion to ensure that they have been in classrooms recently and could relate to the inquired context. The survey was online for ten weeks and took approximately ten to fifteen minutes to complete.

A total amount of 310 (n) survey responses was gathered online over ten weeks, of which 270 (n) were fully complete. Five responses were missing or corrupt. The final number of complete survey answers was 265 (n), which was subsequently used in the analysis. In accordance with Hair, Black, Babin, and Anderson (2010) who suggest there should be a ratio of 40 respondents per independent variable (reflective observation & active experimentation, concrete experience, and abstract conceptualization), there are no sample size limitations in the current analysis.

Students included in the sample ranged from 18 to 30 years old. The average age of a student was approximately 26 years old with a standard deviation of 2 years. The majority of the students were female (approximately 76 %). Although the sample consisted of more females, the aim is not to compare gender in this study. In addition, it was checked for confounding effects (see Tables 2 & 3). The categories for academic programs were employed from the national government statistics bureau such as arts and humanities, business and administration, nature science, health and life science, social science, technology, teacher education and other.

Measures, Procedure, and Variables

This study employed an online survey consisting of 32 (n) questions, separated into three main sections, covering control variables, experiential learning styles, and utilitarian/hedonic values in classrooms. All questions were framed in the context of classrooms as in line with the purpose of the study. Moreover, the survey was constructed in the software *Survey and Report* and modified to fit students' language preferences and understanding. Following the recommendations of Fowler (1992), two pre-tests were employed to ensure the validity of the survey. Firstly, two researchers helped with the design of the scale, discussing the validity of questions and reverse coding. Secondly, ten students were asked to complete the survey and discuss uncertainties and difficulties. Once addressing all issues, the survey was sent out via email.

To measure the *hedonic and utilitarian values* of students, this study employed a modified scale of 10 questions from (Voss et al., 2003). The scale is widely utilized in research (e.g., Chitturi et al., 2008; Okada, 2005) and consists of 10 semantic items measuring five hedonic and five utilitarian values with a 7-point Likert scale. This study modified the scale to correspond with the context of classrooms, hence representing hedonic and utilitarian values and attitudes students have towards higher education classrooms.

In developing measures for investigating experiential learning styles, forced-choice questions, as frequently used in LSI, were avoided as to the critique in the literature (Manolis et al., 2013), meaning that individuals can have different degrees of different learning styles and hence are more complex. To address this issue, a continuous RLSI (reduced learning style index) scale was adopted from Manolis et al. (2013) that converted Kolb and Kolb's learning styles into three continuous factors, thus allowing complementary analyses. The scale consists of 17 items, representing three major factors. One of them is reflective observation and active experimentation (ROAE), which load on the same factor, the second one is (CE) concrete experience, and the last one (AC) is abstract conceptualization. The degree of these factors was gathered with a 7-point Likert scale, where 1 is, do not agree at all, and 7 agree completely. These measures were above the tolerable explorative threshold of $\alpha = .60$ (DeVellis, 2016).

The hypotheses of this study were tested with two separate hierarchical multiple regressions (Cohen, 1988), each one investigating the relationship between learning styles and either hedonic or utilitarian values. This to test if various learning styles have an impact on individual level and when all were present in a full model.

Before performing the hierarchical multiple regression analyses, preliminary analyses were conducted to exclude violation of normality, linearity, and homoscedasticity. Table 1 shows the correlation between variables.

Table 1: Descriptive statistics and Pearson correlation coefficients (N=265)

<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1. ROAE	5,157	0,793	1,000	0,302**	0,385**	0,095	0,089
2. CE	4,534	0,980		1,000	0,582**	0,234**	0,250**
3. AC	4,981	0,950			1,000	0,329**	0,392**
4. Hedonic	3,574	0,964				1,000	0,488**
5. Utilitarian	4,415	0,966					1,000

*Notes: *p < 0.05; **p < 0.01; two-tailed tests*

The mean values of variables are between 3.574 and 5.157, and have a standard deviation between 0.793 and 0.980. In addition, the majority of the correlations between variables were significant ($p < 0.05$). In accordance with (Cohen, 1988) rule of thumb, small, medium, and large strengths between variables were obtained. This suggests that there are no major issues of multicollinearity between variables.

Aside from the correlation between variables, diagnostic tests were performed to ensure the robustness and validity of the hierarchical multiple regressions. Initial assumptions of outliers and linearity were checked by examining scatterplots and Cook's distance. No apparent case of extreme outliers was identified, suggesting linear models. Moreover, autocorrelation,

homoscedasticity, multicollinearity, and normality were examined. It was found that the residuals have a normal distribution. In addition, VIF values ranged between VIF 1.012 and 1.667. The obtained values are within Hair et al. (2010) rule of thumb 1 to 3. These results suggest no multi-collinearity in the models.

Moreover, a validity test of common method variance was performed (Chang, van Witteloostuijn, & Eden, 2010; Jarvis, Mackenzie, Podsakoff, Mick, & Bearden, 2003; Podsakoff & Organ, 1986). Harman's single factor test was performed where the first factor accounts for 46 percent of the variance. These results are in line with Lindell and Whitney (2001) guideline with variance below 50 percent of the first variable. However, one test is not sufficient for ensuring validity (Chang et al., 2010; Jarvis et al., 2003; Podsakoff & Organ, 1986). Therefore, a partial correlation test with a marker variable was performed (Williams, Hartman, & Cavazotte, 2010). Results show no significant difference (≤ 0.003) compared with originally obtained correlations. It indicates that the data does not suffer from common method variance issues.

RESULTS

The Relationship between Learning Styles and Hedonic Values

A hierarchical multiple regression analysis was performed to test and examine the relationship between learning styles and hedonic values (H_1 , H_2 , and H_3). Initially, independent variables of learning styles were respectively tested with the dependent variable hedonic values. Thereafter, independent variables were tested simultaneously with the dependent variable. Results from the performed hierarchical multiple regression are shown in Table 2.

Model 1 in Table 2, the baseline model accounts for 1.8 percent of the variance in hedonic values. When learning styles were entered respectively in Models 2, 3, and 4 and simultaneously in Model 5 the variance increased in each model. Models 2, 3, 4, and 5 account for 2.9; 12.1; 7.1; and 12.5 percent of the variance in hedonic values. Moreover, F-scores (Model 1: $F=1.214$; Model 2: $F=2.963$; Model 3: $F=30.350$; Model 4: $F=14.712$; and Model 5: $F=10.541$) were significant in all models besides Model 1 with hedonic values.

The baseline model shows the effect of included control variables on hedonic values. In Models 2, 3, and 4 we examine the effects of learning styles on hedonic values, by respectively entering the independent variables in the baseline model. Model 5 shows the full model, which examines the effect of learning styles on hedonic values by entering independent variables simultaneously.

In H_1 , it was predicted that reflective observation & active experimentation have a positive relationship with hedonic values. Models 2 and 5 show no support for H_1 . Thus, H_1 is rejected. In H_2 , it was predicted that concrete experience has a positive impact on hedonic values. Models 3 and 5 provide evidence that concrete experience positively influences hedonic

values. The coefficients are positive and statistically significant in the models ($p < 0.001$). Hence, H_2 is accepted. In H_3 , it was predicted that abstract conceptualization has a positive effect on hedonic values. Although Model 4 shows support for H_3 , the final model (Model 5) provides no support for the predicted relationship. Therefore, H_3 is rejected or partly supported.

Table 2: Hierarchical multiple regression the relationship between learning styles and hedonic values

<i>Independent variables</i>	<i>Expected directions</i>	1	2	3	4	5
<u>Control variables</u>						
Gender		0,014 (0,122)	0,004 (0,122)	0,044 (0,016)	0,008 (0,119)	0,043 (0,017)
Age		-0,002 (0,018)	-0,003 (0,017)	-0,004 (0,017)	-0,008 (0,017)	-0,005 (0,117)
Education		-0,006 (0,007)	-0,005 (0,007)	-0,007 (0,007)	-0,007 (0,007)	-0,007 (0,007)
Students in the classroom		-0,073* (0,034)	-0,078* (0,034)	-0,057? (0,032)	-0,066* (0,033)	-0,055? (0,032)
<u>Hypotheses variables</u>						
H ₁ : ROAE	+		0,129? (0,075)			-0,042 (0,078)
H ₂ : CE	+			0,328*** (0,060)		0,301*** (0,076)
H ₃ : AC	+				0,228*** (0,060)	0,068 (0,072)
F:		1,214	2,963?	30,350***	14,712***	10,451***
Adj-R ²		0,003	0,011	0,104	0,053	0,101
R ²		0,018	0,029	0,121	0,071	0,125
Change in R ²			0,011	0,103	0,053	0,107

Notes: H_1 to H_3 indicate hypotheses. ? $p < 0,10$; * $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$.

Values are unstandardized beta coefficients. S.E. (standard error) is presented within parenthesis immediately below the unstandardized beta values for each of the independent variables, respectively.

Dependent variable: Hedonic values.

The Relationship between Learning Styles and Utilitarian Values

The relationships between learning styles and utilitarian values were tested with a hierarchical multiple regression analysis. Identical with testing H_1 , H_2 , and H_3 , independent variables of learning styles were tested respectively with the dependent variable utilitarian values (H_4 , H_5 , and H_6). Thereafter, independent variables were tested simultaneously towards the dependent variable. Results from the performed hierarchical multiple regression are shown in Table 3.

Model 1 in Table 3, the baseline model accounts for 3.2 percent of the variance in utilitarian values. When learning styles were entered respectively in Models 2, 3, and 4 and simultaneously in Model 5, the variance increased in each model. Models 2, 3, 4, and 5 account for 4.2; 18.8; 10.1; and 19.4 percent of the variance in utilitarian values. Moreover, F-scores (Model 1: $F=2.148$; Model 2: $F=2.657$; Model 3: $F=49.7963$; Model 4: $F=19.736$; and Model 5: $F=17.275$) where significant Model 3, 4, and 5 in utilitarian values.

Table 3: Hierarchical multiple regression the relationship between learning styles and utilitarian values

<i>Independent variables</i>	<i>Expected directions</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<u>Control variables</u>						
Gender		-0,147 (0,122)	-0,157 (0,121)	-0,027 (0,016)	-0,155 (0,118)	-0,106 (0,112)
Age		-0,024 (0,017)	-0,026 (0,017)	-0,111? (0,112)	-0,031? (0,017)	-0,027 (0,016)
Education		0,013? (0,007)	0,013? (0,007)	0,012? (0,007)	0,011 (0,007)	0,011 (0,007)
Students in the classroom		0,036 (0,034)	0,032 (0,034)	0,055? (0,031)	0,044 (0,033)	0,060 (0,031)
<u>Hypotheses variables</u>						
H ₄ : ROAE	+		0,122 (0,075)			-0,094 (0,075)
H ₅ : CE	+			0,404*** (0,057)		0,402*** (0,074)
H ₆ : AC	+				0,261 (0,059)	0,057 (0,069)
F:		2,148?	2,657	49,796***	19,736***	17,275***
Adj-R ²		0,017	0,023	0,172	0,083	0,172
R ²		0,032	0,042	0,188	0,101	0,194
Change in R ²		0,032	0,010	0,156	0,069	0,162

*Notes: H₄ to H₆ indicate hypotheses. ? $p < 0,10$; * $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$.*

Values are unstandardized beta coefficients. S.E. (standard error) is presented within parenthesis immediately below the unstandardized beta values for each of the independent variables, respectively.

Dependent variable: Utilitarian values.

The baseline model shows the effect of included control variables on hedonic values. In Models 2, 3, and 4 we examine the relationship between learning styles on utilitarian values, by respectively entering the independent variables in the baseline model. Model 5 shows the full model, which examines the effect of learning styles on utilitarian values by entering independent variables simultaneously.

In H₄, it was predicted that reflective observation & active experimentation are positively related to utilitarian values. Models 2 and 5 provide no support for the predicted relationship. Hence, H₄ is rejected. In H₅, it was predicted that concrete experience has a positive relationship with utilitarian values. Results from Models 3 and 4 show support for H₅. Thus, H₅ is accepted. In H₆, it was predicted that abstract conceptualization has a positive impact on utilitarian values. Models 4 and 5 provide no evidence of the predicted relationship. Therefore, H₆ is rejected.

DISCUSSION

The study shows interesting relationships between the concrete experience learning style with hedonic and utilitarian values. Results show that students who score higher on the concrete experience scale also have higher hedonic and utilitarian values of classrooms, which are suggested to impact learning outcomes (Boyle et al., 2003).

By accepting H₂, the result implies that students with concrete experience as a learning style are positively related with teaching and classrooms designed to be fun, exciting, and pleasurable.

Results show that abstract conceptualization has no impact on hedonic values. It indicates that students who reflect and process information in the classroom (Kolb & Kolb, 2005b) do not perceive the learning to be hedonic. Even though abstract conceptualization does not have a positive relationship with hedonic and utilitarian values, it does not show a negative relationship. This is important, as modifying a classroom to satisfy students with a high score on concrete experience does not conflict with students that score high on 'abstract conceptualization'. In other words, it strengthens the notion that students have more than one learning style, rather than being a dichotomous concept (Manolis et al., 2013). It may be of importance to identify students that score higher on this scale to design more stimulating classrooms.

Moreover, it is also demonstrated that concrete experience has a positive effect on utilitarian values. By accepting H₅ that students with a concrete experience as a learning style are positively related to effectiveness, functionality, necessity, and practicality in teaching or classrooms.

Although only H₂ and H₅ are accepted, the results are interesting from an experiential learning theory point of view. The results demonstrate that only concrete experience has an impact on both hedonic and utilitarian values. This is in accordance with Kolb and Kolb (2005b) notion of emotional and experiential traits of concrete experience signifying that concrete experience-skewed students tend to have an impact on hedonic and utilitarian values. The results suggest that these students are more sensitive to perceiving hedonic and utilitarian values, and this may subsequently have an impact on their learning. Thus, the findings demonstrate that concrete experience-oriented students have a positive impact on hedonic values such as fun, excitement,

and pleasure, as well as utilitarian values such as effectiveness, functionality, necessity, and practicality in classrooms.

Based on the results and the discussion, this study suggests that classrooms could be constructed in relation to hedonic and utilitarian attributes. It would improve the learning environment leading to the enhancement of students' learning styles, in particular, accommodators and diverges (learning styles) who score higher on the concrete experience scale. Following this logic, students would become more receptive to formation of a supportive learning environment corresponding to expectations of hedonic and utilitarian values in classrooms (Kim, Seitz, & Shams, 2008; Von Kriegstein & Giraud, 2006). It indicates that classrooms should be designed with stimulating and practical interiors, for example with whiteboard, projector, desks, and chairs, and this will unconsciously have a positive impact on student learning in accordance with active learning classrooms (Walker & Baeppler, 2017). Hence, it is imperative that students perceive classrooms as hedonic and utilitarian since this has a positive impact on their learning.

As mentioned previously, considering the critique of generalizing students to belong to specific learning styles (Curry, 1990; Loo, 2004; Manolis et al., 2013; Reynolds, 1997), the remainder of students are in this study not overlooked. It should be duly noted that students have various levels of experiential learning styles, but this study demonstrated that concrete experience leaves an imprint on hedonic and utilitarian values.

In regard to creating hedonic classrooms, multisensory design could be a solution. For example, Shams and Seitz (2008, p. 1) state, "We suggest that training protocols that employ unisensory stimulus regimes do not engage multisensory learning mechanisms". Hence, involving multiple senses is, therefore, more beneficial than using only one sense when it comes to student learning. This is linked to Kolb and Kolb's Experiential Learning Model (Kolb & Kolb, 2005a) since students interpret the classroom environment and learn by obtained sensory information.

Although there has been a trend in research that has shifted focus from classrooms to the learning environments of individuals and groups (Gibbs, 2013), there is no doubt that students still spend much of their time learning in classrooms. However, classrooms are still relevant to be constructed and modified to facilitate learning (Cheryan et al., 2014). Following this logic, this study demonstrates the importance of having hedonic and utilitarian attributes to positively impact on student learning in classrooms. Even if the development is moving towards students working individually or in groups much teaching still takes place in the physical classroom. For example, a case can be presented in the classroom that students solve individually or in groups. Therefore, it is logical to assume that the hedonic and utilitarian attributes in the classroom serve as the foundation to influence student learning, which they later can develop through individual or group work.

CONCLUSIONS

This study examined the relationships between (Kolb & Kolb, 2005b) learning styles and hedonic and utilitarian values of classrooms in higher education. It is found that the learning style component, concrete experience, has a positive impact on both hedonic and utilitarian values held by students. The findings demonstrate the importance of considering both hedonic and utilitarian values (Voss et al., 2003) when designing classrooms to satisfy student expectations, and this may subsequently have an impact on learning outcomes (Myers, 2010). All students, to some extent, have concrete experience, and those who score higher on this scale find learning environments such as classrooms to be more important for their learning. As Cheryan et al. (2014) state, many classrooms have inadequate structural facilities and the physical properties within them have value for maximizing student achievements. Similarly, this research provides theory and gives practitioners a better understanding that not all individuals are equally affected by hedonic and utilitarian classrooms. In regard to this, it can be concluded that students' knowledge derives from their experience, reflection and thoughts (Kolb & Kolb, 2005b) of hedonic and utilitarian attributes in the classroom. Hence, all students experience the classroom, but they have different levels to make sense of the hedonic and utilitarian attributes, i.e., concrete experience.

This study contributes to the pedagogic literature regarding the relationship between learning styles and hedonic and utilitarian values in classrooms. Teachers may utilize this notion by first understanding hedonic and utilitarian stimuli in the environment in the classroom, for example, presentations, speeches, and case studies should be aligned with student's learning styles in the given setting to generate more engaged and motivated students (Boyle et al., 2003; Cheryan et al., 2014). This study also provides an important opportunity to advance the understanding of the potential positive outcomes active learning classrooms provide (Walker & Baepler, 2017). Although the teachers in higher education are not fully responsible for designing classrooms, they can still influence the physical environment through practical experiential tools. For example, by using various hands-on-tools, laboratory work, multimedia equipment such as digital boards for engaging students, by writing or making interactive videos, or even tools such as Mentimeter or Kahoot, will allow students to interact through smartphones or tablets with the educator. Hence, teachers can constantly adjust their presentations in line with what is offered in the physical classroom to satisfy concrete experience-oriented students. This study suggests that although teachers in the realm of higher education share classrooms and have little to say about the design, they are encouraged to take more care in managing the physical classroom environment.

LIMITATIONS AND FUTURE RESEARCH

Learning outcomes have not been examined or tested in this study, and should in future studies be investigated with surveys and experimental design. Moreover, further research needs to be conducted to establish whether the match between utilitarian/hedonic-oriented classrooms can mediate cognitive functioning or learning.

The intention of this study was not to examine, test, and compare various classrooms. It would be interesting to examine physical and virtual classrooms to identify a suitable design regarding learning styles and hedonic/utilitarian values. This leaves the following questions unanswered, to what extent and how adaptable students are with various learning styles in different classroom settings. Future research is encouraged to explore student preferences of hedonic and utilitarian values in the atmosphere with qualitative interviews to understand how various levels of experiential learning styles influence different classroom settings.

Although this study has a sample representing students from a broad range of education programs, a limitation may be the scope of Swedish universities. Further research is encouraged to examine and test this study's hypothesized relationships in other countries. This may provide insights of similarities and differences of how classrooms are designed in higher education and how it influences students learning.

In summary, this paper has demonstrated the importance of hedonic and utilitarian attributes in classrooms to impact student learning positively. However, future research is suggested to examine different higher education program fields or disciplines more closely, since it may be the case that a classroom in business administration, compared with engineering, is designed differently to facilitate and impact that particular student group.

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