

**The valuation of campus built heritage from the student perspective:  
Comparative analysis of Rhodes University in South Africa and St.  
Mary's College of Maryland in the United States**

P. Joan Poor<sup>1</sup> and J. D. Snowball<sup>2</sup>

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**Abstract**

Many universities and colleges around the world have done extensive surveys of their campus' built heritage resources. A detailed description and accounting of a campus' built heritage, landscape heritage and archaeology, are often used for historic preservation planning, and sustaining built culture is also an important aspect of future campus master planning of future buildings. Such institutions of higher education have deep historical roots, in Europe it is not uncommon for buildings to be dated prior to the sixtieth century. In countries where European colonies were established institutions of higher education often date to the eightieth and early ninetieth centuries. Once students have arrived at their chosen campus, however, except for perhaps the first week orientation rituals, do the students actually develop ties to their campus' built heritage? This research investigates the knowledge students possess of their respective campus' built heritage and the importance of built heritage as a legacy to them. Two institutions are included in this study in an effort of draw comparative assessments. A student questionnaire was administered at Rhodes University in South Africa and St. Mary's College of Maryland in the United States during April 2008. Results indicate students on both campuses place positive intrinsic value on their respective campuses built heritage. Just over half (52%) of Rhodes students and about 68% of St Mary's students were willing to pay some positive amount to protect campus built heritage. Empirical probit model results combining the data from both institutions found that current student knowledge of their respective campus' built heritage did not positively relate to the value they place on preservation, even though the visual identity was significant for students and influenced their decision to attend the particular institution. The lack of significance regarding an ethnicity variable coefficient estimate suggests that the use of an institution's visual identity in terms of built heritage may have important marketing implications, particularly in cases where universities or colleges are trying to attract students from more diverse backgrounds. We found no

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<sup>1</sup> St. Mary's College of Maryland, Department of Economics, 18952 E. Fisher Road, St. Mary's City, Maryland USA 20686, Email: [pjpoor@smcm.edu](mailto:pjpoor@smcm.edu) Ph: 240-895-3385

<sup>2</sup> Rhodes University, Department of Economics and Economic History, Grahamstown, 6140, South Africa, Email: [j.snowball@ru.ac.za](mailto:j.snowball@ru.ac.za) Ph: +27 46 603 8303

significant relationships between willingness to pay to preserve an institution's built heritage and the demographic variables included in our empirical model. Fundraising data analysis indicate include positive willingness to pay for conserving built heritage, yet funding for new construction was not significant.

## **1. Introduction and Purpose**

Institutions of higher learning, many of which have existed for centuries, are home to some of the world's most important built heritage. Such institutions of higher education have deep historical roots: in Europe, it is not uncommon for buildings to be dated prior to the sixteenth century. In countries where European colonies were established institutions of higher education date as far back at the seventeenth century with many dating to the nineteenth and early twentieth centuries. It is therefore understandable that many universities and colleges around the world have done extensive surveys of their campus' built heritage resources. A detailed description and accounting of a campus' built heritage, landscape heritage and archaeology are often used for historic preservation planning, and sustaining built culture is also an important aspect of planning for future campus buildings and campus identity and community development.

Built heritage is commonly used in admissions marketing literature, often to brand the university [8]. Many universities and colleges possess material culture collections as well, with which an institution gains identity and which can be potentially used for promotion [23]. Once students have arrived at their chosen campus, however, except for perhaps first week orientation rituals, do they actually develop the sense of identity and community manifested in their campus' built heritage? This research investigates the knowledge students possess of their campus' built heritage and the importance of built heritage as a legacy to them through the use of a non-market contingent valuation survey. Two institutions are included in this study in an effort to draw comparative assessments. They are: St Mary's College of Maryland (SMCM) in the United States of America and Rhodes University (RU) in Grahamstown, South Africa. Both institutions are public. St. Mary's College of Maryland is primarily a liberal arts undergraduate baccalaureate college which also offers a Master of Teaching degree. Rhodes University also has a liberal arts tradition, but offers numerous graduate degrees thus having a decidedly larger research focus than St. Mary's College. Rhodes University has about 6,000 students whereas St. Mary's College of Maryland is roughly one-third this size. Both institutions, however, enjoy reputations of close collaborations between students and staff or faculty in teaching and research, and are geographically located in smaller towns or cities some one and one-half hours driving time from significantly

large urban areas; Port Elizabeth in the case of Rhodes University and Washington, DC in the case of St. Mary's College of Maryland.

Valuation of campus built heritage from a student perspective is also of interest because of large grants the Getty Foundation has recently made to many colleges and universities in the United States to inventory their built heritage, including St. Mary's College. From 2002 through 2007, this campus heritage grant program awarded grants in excess of \$13.5 million to 86 historic campuses in the United States. Despite many such grants, we have not been able to identify any studies valuing campus built heritage from the student perspective. Research in the area of campus built heritage seems to be undertaken primarily with marketing in mind, which generally assumes a positive value for built heritage [23].

The purpose of this research is threefold and includes: (1) an investigation of the knowledge students possess of their respective campus' built heritage, (2) its importance to them and their academic experience, and (3) an investigation of the value students place on preserving their campus' built heritage in terms of their willingness to pay. We undertake a cross-cultural comparative assessment of the students' attitudes from both Rhodes University and St. Mary's College of Maryland via a written questionnaire administered during April 2008. Questionnaires were presented to a variety of classes in order to draw a cross section of demographic information in terms of disciplinary studies as well as year of study. We employ an empirical probit count model to investigate what variables are statistically significant with regard to what we call student preservation values of their respective campus' built heritage. The results have potential importance for student recruitment and retention and for alumni development, should campus built heritage be anticipated to be utilized for such activities.

## **2. Literature Review**

### **2.1 *Built heritage valuation studies***

There already exists a fairly large number of non-market valuation studies of built heritage, ranging from specific historical buildings, including Durham Cathedral in the UK [42], Bulgarian monasteries [28] and Changdeok Palace in Korea [21], to whole urban districts, including parts of Venice [3] and Noto [11] and archaeological sites, such as Knossos Palace [4] and Roman forts at Vindolanda [44]. Additional valuation studies for historic sites are included in references [17, 22] and a comprehensive bibliography of heritage valuation is presented by Eftec [18].

There is a conspicuous absence, however, of such valuation studies of university or college built heritage, although there are various other "mapping" studies and more than 95 campus historical districts listed on the National Register of Historic Places in the United States [6].

One reason for a lack of study might be the conflict in heritage valuation in general between reliance on "expert" valuations (for example,

from art historians, archaeologists, and architects) and the recognition of the need to involve a broader range of stakeholders in built heritage decisions if sustainable practice is to be achieved [13]. The latter, more democratic valuation approach, which makes use of public surveys, has yet to permeate campus heritage studies. For example, Thomas in reference [37] notes participants in the symposium on college planning and heritage held at the University of Oregon in 2002 included architecture critics, cultural historians, administrators, academics, and consultants, but no students.

An important area of friction is the tension which exists between those advocating strict historical preservation and those who argue that adaptation is needed and should be allowed [32]. For example, Bayer and Gerdes in reference [6] argue that new buildings should harmonize with the historic character of the campus in order to present a coherent and attractive whole. However, while there may be good reasons for preservation, a strict preservation agenda can sometimes be seen as a constraint on universities and colleges trying to “evolve beyond their origins” through original modern designs in order to “engage students attuned to the contemporary world of pop culture, television and the Internet” [37].

The value that built heritage provides can be divided into use and non-use values. Use values are those that accrue to people who actually use and visit the site. Non-use values might be related to altruistic values, bequest values, existence values or option-use values [30]. In the case of campus built heritage, for example, use values might apply to the students and staff on campus, while non-use values might apply to alumni and others who know about and value, but do not visit or otherwise use the site on a regular basis.

There are many reasons why it may be important to preserve campus built heritage: campus architecture is an important way to visually and materially demonstrate the character and history of a college, it may boost recruitment and branding, build a stronger sense of identity and community, be used as a visual reminder to alumni and an important part of fund raising, be used to open discussions on relationships between college and local history, and attract tourists to the area, and provide economic benefits to the region [6, 8]. As Riganti in reference [33] puts it, “cultural heritage goods bear symbolic values that help in building common identities. Monuments and historic areas can be regarded as a stock of social values that need to be preserved and enhanced.” This also refers to Throsby’s [39] notion of cultural capital: “long lasting stores of [cultural] value and providers of benefits to individuals and groups.”

“The economic value of cultural heritage can be defined as the amount of welfare that heritage generates for society” [34], but a risk in “democratic” valuation studies of built heritage is that public values may not agree with those of the experts: “What happens when the democracy of voices

decides that a heritage site can be destroyed? Do we, as conservation professionals, have a right, or even a responsibility to speak against the democratic will?" [13].

There is always the possibility that the history and culture evoked by built heritage may not be regarded in a positive light by all stakeholders. For example, the Morey and Rossmann [26] valuation study of the preservation of marble monuments in Washington, DC, found that an increase in preservation reduced the welfare of some groups (young, non-white). Thus, while some may celebrate the historical and cultural symbolism of built heritage, the same building or monument could be perceived as a threat or a symbol of discrimination by other groups [33]. Cheng in reference [10] notes that, as campus communities become more diverse, their historical heritage may reflect an institution's elitist beginnings, and thus contribute to negative student feelings and opinions toward the visual built heritage on university and college campuses. When this is the case, new traditions and community cultures, buildings and rituals could also be actively pursued.

In a situation where many universities and colleges use historical built heritage as an important branding tool, much of which has colonial overtones, and, at the same time, are trying to attract a more diverse student body, the lack of campus built heritage valuation studies from the point of view of the students is problematic. Bayer and Gerdes in reference [6] report that 62% of high school seniors in the United States said that they chose their college mainly by how the buildings and grounds looked – not surprising given how much campus built heritage is used in brand creation [8]. In order for increasingly multicultural and diverse student bodies to develop a sense of social cohesion and for effective marketing, it is increasingly important to understand the value that different groups may place on campus built heritage.

## **2.2 *The willingness to pay method***

Willingness to pay studies are used to estimate the value of goods not (or not yet) sold in the market and/or to place a value on the positive or negative externalities of public goods. The two main categories of non-market valuation techniques are: stated preference methods, which are the only methods available to measure passive or non-use values, and revealed preference methods, which try to attach value to a good through the use of the market, for example, the travel cost and hedonic pricing methods [43]. The willingness to pay (WTP) method discussed in this paper falls under the stated preference category, also referred to as contingent valuation (CV), since values are contingent upon the good or scenario described within the study.

Contingent valuation is a survey technique which asks respondents directly what they would be willing to pay to achieve a particular scenario, like an improvement in environmental quality or the preservation of a particular cultural good. The most common concern when using this method is that it is prone to hypothetical bias, also called the “free rider” effect, since respondents make no real payment. This might provide an incentive to overstate willingness to pay in order to benefit, should the good be supplied. However, research has not borne out initial fears that hypothetical bias would make the willingness to pay method unusable (see for example references [29, 41, 35]). Effective methods for controlling and detecting this form of bias through questionnaire design, such as follow-up questions or debriefing about the reasons for being (un)willing to pay [2] and post-decision confidence measures [7, 38], have proved to be mostly successful [1, 24].

Willingness to pay studies may also be prone to information bias: Some level of information about the proposed “good” has to be given to respondents so that they can make as realistic a decision as possible. However, Niewijk in reference [31] argues that CV measures are supposed to be measuring pre-existing values, but that if respondents are not directly aware of or knowledgeable about the good before the survey, the information provided might in fact create the value it proposes to measure. Care must thus be taken to provide information in as unbiased a way as possible, without (for example) the use of emotive photographs and language suggesting positive values or a “right” opinion [5]. If possible, some measure of prior knowledge about the good could be included at the start of study to determine existing levels of knowledge.

The WTP question format was also found to be significant: closed-ended questions, or choice cards offering a defined range of payment amounts, being generally accepted as providing more accurate data, since they mimic the kinds of decisions consumers make in a real market situation [5, 43].

Concerns were also expressed regarding the “warm glow” hypothesis: that respondents were merely expressing a positive attitude towards the “good” being valued and not an actual value, which resulted in willingness to pay estimates being insensitive to the scope or size of the good being valued, when economic theory predicts that more should be paid for a greater quantity of the good [15, 16]. Here, again, proponents of the method argued that the information provided and the use of realistic payment vehicles was the key to obtaining accurate estimates of willingness to pay [19].

At the height of the debate about the method, the National Oceanic and Atmospheric Administration, a Federal agency housed within the Department of Commerce in the United States, produced a review on the use of CV studies, chaired by, amongst others, Kenneth Arrow and Robert Solow. The report established guidelines and recommendations for CV studies

which, if followed, “can produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive-use values” [5].

Carson and Mitchell in reference [9] conclude that it is the quality of the response to a WTP question that will determine the accuracy of the study. This is determined, in their view, by the survey design and administration or content validity:

“Respondents must (i) clearly understand the characteristics of the good they are being asked to value; (ii) find the contingent valuation (CV) scenario elements related to the good’s provision plausible; and (iii) answer the CV questions in a deliberate and meaningful manner”.

Contingent valuation studies are now widely used in cultural economics (see Snowball [35] for a list of examples) and remain the only way of measuring passive-use values, where no behavioural evidence exists. Much of the debate around the use of the willingness to pay method has thus now shifted to questionnaire and study design issues, rather than focusing on the method itself.

### **3. Methodology**

#### **3.1 Questionnaire Development**

The self-completion questionnaire used in this study was divided into five parts, starting with a general introduction and definition of the good being valued. In order to control information bias, the information avoided emotive language use or the implication that campus built heritage was accepted as valuable. However, a certain level of information was deemed necessary in order to define the good being valued [20]. In particular, a distinction was drawn between non-material campus heritage, which could include traditions and ceremonies, and material or built heritage. While it was acknowledged that many universities and colleges used campus heritage for marketing purposes, the introduction emphasized the importance of student opinion: “The purpose of this questionnaire is to help better understand what you as students know about you campus’s built heritage and your feelings about it.”

The second part consisted of questions that gauged current student knowledge about campus built heritage (adapted for use at RU and SMCM). An *a priori* assumption (based on findings in cultural economics studies, see references [3, 14] was that students with more knowledge of campus heritage would have a higher willingness to pay. This section of the questionnaire also included information on, what might be termed “use values,” that is, students who had taken a campus tour, had been a campus tour guide themselves, or logged onto the university or college website in search of historical campus information.

The third part of the questionnaire collected student opinions on the emotions generated by campus built heritage. Given the findings by Morey and Rossmann [26] and [10], students were deliberately offered the option of expressing negative opinions. For example, students could respond as “proud,” “neutral,” or “negative” to the question, “How do you feel about campus built heritage?” The possibility that buildings in the western, colonial tradition could evoke feeling of isolation and disconnection from the home culture of students from diverse backgrounds (including black/African-American, Asian, Hispanic and Indian students) was also explored. In terms of the use of campus heritage as a marketing tool, students were asked whether it had played any role in their choice of college and to rate its importance on a scale from one to ten in this regard.

Part four also included the willingness to pay question. As recommended by the NOAA Panel [5], a closed-ended question format was used, with as realistic and familiar a payment vehicle as possible (a percentage of annual tuition, also shown in South African Rands and US dollars) was chosen. As a way of detecting “warm glow” and inconsistent responses, a follow-up question, “Explain your choice,” and a post-decision sureness measure were also included. In an effort to minimize the impacts of this cross-country study in terms of differing currencies and purchasing power, maximum willingness to pay categories were developed based on percentage increases in yearly tuition to preserve their respective campus’ built heritage. Five tuition increase categories were included (0%, 0.25%, 0.5%, 1%, and greater than 1%). For ease in comprehending these percentage increases, US dollar or South African Rand amounts were also given that correspond to each percentage amount category. A sixth option was also provided, the “Don’t Know” category, which was coded as zero, for the empirical analysis.

As suggested by Sunstein in reference [36], it is important that respondents are made aware of substitute goods – in this case, alternative funding categories – in order to give context to their choice. Students were thus given a list of funding categories (student bursaries/scholarships, library resources, conservation of historical built heritage, student resources, such as computer labs and lecture venues, and new cultural heritage, such as museums, concert halls and theatres), from which they were asked to choose the two most important categories.

The final section of the questionnaire collected demographic data on the students themselves including: gender, nationality, racial group, year of study, major subjects and faculty and/or department.

### **3.2 Data Collection**

Data was collected using a self-completion willingness to pay questionnaire handed out in classes and tutorials with a brief introduction from the lecturer or researcher. Classes were randomly selected, but with an



attempt to gather data from students across all academic disciplines and years of academic study within the sample size of 250 -300 determined by the budgetary limitation of the study.<sup>3</sup> The total number of completed questionnaires was 636, of which 297 were from Rhodes University and 339 were from St. Mary's College of Maryland.

The Rhodes sample approximated the population fairly well, with slightly more women (54%) and 82% of the sample being South Africans. Approximately 50% of the sample classified their ethnic or racial group as "white," 44% as "black" (including coloured people,) and the rest being of Indian or Asian origin. In terms of study year and area, second year students were somewhat over-represented (46% of the sample) and students from the commerce faculty were rather under-represented (making up only 15% of the sample).

The St. Mary's College sample was also representative of the population in terms of gender, with 55% female. Approximately 82% of the St. Mary's sample classified their ethnic or racial group as "white," about 9% self-identified as "African American", 4% as "Hispanic", and 4% as Asian, with the remainder identifying as Native America or as undisclosed. In terms of disciplinary study areas, the distribution of the St. Mary's respondents included 37% from the natural sciences, 35% from the social sciences, and 32% from the humanities. This distribution is slightly high for the natural sciences in part, because respondents indicated they were studying in more than one disciplinary area.

### **3.3 Empirical Model**

We employ an ordered probit model [12] to empirically investigate student values, in terms of their maximum willingness to pay to help preserve their campus' built heritage, in a cross cultural context using data from Rhodes University and St. Mary's College of Maryland. Using both combined and separate models, students were asked to express their willingness to pay to help preserve their respective campus' built heritage. Willingness to pay values are rooted in economic utility theory, where it is assumed the survey respondent chooses the category of willingness to pay level that maximizes their respective perceived utility or satisfaction associated with the situation or good being valued. In this study we provided respondents with willingness to pay alternatives ( $WTP_i$ ) of increasing values such that  $i = 1 \dots j$  categories or choices. Thus assuming the respondent chooses the category  $i$  over  $i+1$ , if their utility of choice  $i$ ,  $U_i > U_{i+1}$  (utility of  $i+1$ ). The individual respondent's theoretical utility model can be expressed as follows:

$$U_i = f(K_i, O_i, D_i) \tag{1}$$

Where  $i = 1, 2, \dots, n$  respondents.

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<sup>3</sup> Our sincere thanks to those lecturers and professors who assisted us with the study.

The vectors of explanatory variables  $K$ ,  $O$ , and  $D$ , represent attributes regarding the individual's knowledge of campus built heritage ( $K$ ), opinions regarding campus built heritage ( $O$ ) and demographic information ( $D$ ), respectively.

As noted above, the econometric model selected to investigate whether these explanatory variables significantly influence the individual respondent's maximum willingness to pay is an ordered dependent variable model referred to as an ordered probit model. This model assumes that the observed category of  $WTP_i$  represents ordered or ranked response categories, and that the actual  $WTP_i^*$  falls within the lower and higher threshold levels or limit points of each category. The actual  $WTP_i^*$  is then modeled as a latent variable in terms of the observed binary or categorical dependent variable ( $WTP_i$ ) that depends linearly on the vector of explanatory variables, simplified as ' $x_i$ ', as follows:

$$WTP_i^* = x_i' \beta + \varepsilon_i \quad (2)$$

where  $\varepsilon_i$  are independent and identically normally distributed random variables, such that  $\varepsilon \sim N(0, 1)$ . Consistent with Daykin and Moffatt [11],  $\beta$  is a vector of parameters not containing an intercept that will be interpreted in a similar way as slope parameters in a linear regression model. The observed  $WTP_i$  is thus determined from the latent or unobserved variable  $WTP_i^*$  using the following rule:

$$(3) \quad WTP_i = \begin{cases} 1 & \text{if } 0 < WTP_i^* \leq \gamma_1 \\ 2 & \text{if } \gamma_1 < WTP_i^* \leq \gamma_2 \\ 3 & \text{if } \gamma_2 < WTP_i^* \leq \gamma_3 \\ 4 & \text{if } \gamma_3 < WTP_i^* \leq \gamma_4 \\ 5 & \text{if } \gamma_4 < WTP_i^* \end{cases}$$

Consistent with utility theory, it is important to note that the categorical values assigned to the observed  $WTP_i$  are completely arbitrary so long as the ordered specification is preserved such that  $WTP_i^* < WTP_{i+1}^*$  implying that  $WTP_i < WTP_{i+1}$ .

The ' $j-1$ ' threshold or limit values of ' $\gamma$ ' in addition to the ' $\beta$ ' coefficients are estimated using the maximum likelihood method based on the log of the likelihood function constructed using the following probabilities of observing each categorical value of  $WTP_i$ :

$$(4) \quad \begin{aligned} \Pr(WTP_i=1 | x_i, \beta, \gamma) &= F(\gamma_1 - x_i' \beta) - F(0 - x_i' \beta) \\ \Pr(WTP_i=2 | x_i, \beta, \gamma) &= F(\gamma_2 - x_i' \beta) - F(\gamma_1 - x_i' \beta) \\ \Pr(WTP_i=3 | x_i, \beta, \gamma) &= F(\gamma_3 - x_i' \beta) - F(\gamma_2 - x_i' \beta) \\ \Pr(WTP_i=4 | x_i, \beta, \gamma) &= F(\gamma_4 - x_i' \beta) - F(\gamma_3 - x_i' \beta) \\ \Pr(WTP_i=5 | x_i, \beta, \gamma) &= 1 - F(\gamma_4 - x_i' \beta) \end{aligned}$$

Giving rise to the following log likelihood function:

$$L(\beta, \gamma) = \sum_{i=1}^N \sum_{j=1}^5 \log(\Pr(WTP_i = j | x_i, \beta, \gamma)) * 1(WTP_i = j) \quad (5)$$

Where 1(.) is an indicator function taking on the value 1 if the argument is true and 0 otherwise. The ordered probit model was estimated using econometric software. The coefficient estimates, standard errors and levels of statistical significance (P-values) are presented in Table 5. The data from the two institutions was combined in the first model; however, the same model was also estimated separately for each institution. These are all included in Table 5.

## **4. Results**

### **4.1 Summary and Comparative Statistics**

#### **4.1.1 Current Knowledge and Use**

Only about 35% of Rhodes University students and 17% of St Mary's students correctly identified the founding dates of their university or college. However, 75% of Rhodes students listed the four campus buildings referred to in the questionnaire from oldest to newest correctly. In the St Mary's case however, only 16% of the students correctly listed the four campus buildings referred to in their questionnaire from oldest to newest.

Approximately 64% of Rhodes students and 78% of St Mary's students reported taking a campus tour at some stage, most during orientation week at the beginning of the first year. Few students on either campus (7.4% at Rhodes and 17% at St Mary's) had ever been a tour guide themselves. At Rhodes, there was fairly limited exploration of campus history: 13% of students had used historical information about the university in their studies and 32% had used the website to learn about the campus's history. At St Mary's 19% of student respondents said they had used historical information about the college in their studies, and 29% indicated they had used the College's website to learn about their campus's history.

#### **4.1.2 Opinions**

The majority of students on both campuses felt proud of their university or college's built heritage, but this was a much larger group at St Mary's (70%) than at Rhodes (55%), with more Rhodes students reporting "neutral" feelings (Table 1). A possible reason for this is the much more racially and culturally diverse nature of the Rhodes student body.

Evidence for this can be found in Table 2, showing the percentages between positive feelings about campus built heritage belonging to different race groups (being a proxy for cultural and historical background). On both campuses, smaller percentages of African-American and Black students reported positive feelings about campus built heritage (35% at SMCM and 43% at RU) than did students belonging to white and other race groups.

However, most students (70% at Rhodes and 78% at St Mary's), felt that campus built heritage or historic buildings on the campus enriched their time at the university or college in some way and the vast majority (94% at RU and 96% at SMCM) felt that campus built heritage was an important part of the visual identity of the campus and that it was important to preserve it for the future.

As suggested in the literature [10, 27] however, there were a minority of student (10% at RU and 7% at SMCM) who reported that campus heritage made them feel isolated or disconnected from their own cultural or family heritage. Given that Rhodes and St Mary's, like many universities or colleges, are aiming to increase the diversity of students studying at the university or college, this result may have implications for the way in which campus built heritage is used in marketing.

A surprisingly low number of Rhodes students (37%) reported that the built heritage on campus influenced their decision to come to Rhodes compared to 46% of St Mary's students. This may be the result of the fairly limited number of universities in South Africa, which reduces competition and also marketing. Rhodes students, however, still rated campus built heritage as playing an important part in deciding which university to attend, rating its importance at an average of 6.2 on a one to ten scale (where one was not at all important and 10 was very important). St Mary's results were similar rating its importance at an average of 5.7 on a one to ten scale.

#### **4.1.3 Willingness to Pay**

Just over half (52%) of Rhodes students and about 68% of St Mary's students were willing to pay some positive amount to protect campus built heritage. Most of those willing to pay chose the lowest amount (0.25% of current average tuition fees), with those willing to pay higher amounts declining as the "price" increased, as economic theory would predict. 73% of Rhodes students and 68% of St Mary's students were fairly sure or very sure that their stated willingness to pay represented their true preferences.

Other important funding categories identified by students (asked to choose the two most important) are presented in Table 4 and suggest interesting differences and similarities between the two campuses. In terms of ranking, students on both campuses had exactly the same order, with student resources chosen as important most often, then student bursaries/scholarships, then library resources, built heritage conservation and finally, new heritage provision. However, while 51% of RU students chose library resources, only 30% of SCMC chose this option. Slightly more SMCM students chose historical built heritage as one of the two most important funding categories, while only about 10% of Rhodes students did. Further determinants of willingness to pay are explored in the statistical model presented below.

## 4.2 Empirical Model Results

The ordered probit estimation results are presented in Table 5. The coefficient estimate for the RHODES dummy variable was not significantly different from zero thereby supporting the use of the combined model including the data from both Rhodes University and St. Mary's College of Maryland survey questionnaires. For comparative purposes the coefficient estimates for the individual institutional models are also presented, along with the estimated threshold or limit points.

The Likelihood Ratio (LR) statistic for the combined model tests the null hypothesis that none of the explanatory variables have an effect on the dependent variable. Given the LR statistic for this model is 161.18 with a p-value of 0.000, we reject the null thus indicating strong overall significance for the model.

As previously noted, the first section of the questionnaire dealt with questions regarding the respondents' prior knowledge of their respective campus' built heritage. The student respondents were asked to arrange from oldest to newest four buildings from their respective campuses. Whether the respondent correctly indicated this sequence of building ages was captured as the OLDNEW dummy variable (coded as 1 for a correct sequence; 0 otherwise). For the combined or full model the coefficient estimate for the OLDNEW variable was negative and significantly different from zero at the 10% level. The negative sign contrasts with *a priori* expectations thus indicating that knowledge about the relative age of campus buildings was not necessarily related to willingness to pay to preserve them. Given that building age does not positively influence the willingness to pay value in our sample, another area of future research is considering the value students place on the architectural style of campus buildings. In other words the more relevant factor may be whether the architectural style is consistent with the old "core" typically found on many campuses [6]. The DIFFFOUND variable (the difference in years between the actual founding year of the university or college, and the student answer) was also negative and significant at the 10% level. This means that the further student answers were from the correct year that their respective institution was founded, the less likely they would be willing to pay to support campus built heritage preservation. This supports the idea that students who are more knowledgeable about their school's founding year, the more likely they would be willing to pay to preserve its built heritage. Interestingly, the TOUR variable (coded as 1 if the student had ever taken a campus walking tour and 0 otherwise) was not significantly related to willingness to pay. This supports anecdotal evidence that parents are more appreciative of campus tours at both Rhodes University and St. Mary's College than the students are, which may also present marketing implications to further investigate. On the other hand, the coefficient estimate for the WEBHIST variable (coded as 1 if the student had ever used the university or

college website to learn about campus history and 0 otherwise) was positive but not significantly different from zero for the combined model, but significant at the 10% level for the St. Mary's College model. The positive sign indicates that university and college websites have potential opportunity to increase student appreciation of their respective campus' built heritage in terms of willingness to pay to preserve historic buildings.

Analysis of the coefficient estimates for the variables regarding student opinions of their respective campus' built heritage were consistent with *a priori* expectations. For the combined model the coefficient estimates for the FEELPOS variable (coded as 1 if students reported feeling positive about their campus's built heritage and 0 otherwise) and the FEELNEG variable (coded as 1 if students reported feeling negative about their campus's built heritage and 0 otherwise) were both significant at the 1% level, with expected positive and negative signs, respectively. These results indicate that, if students express positive feelings about campus built heritage, they would be more likely willing to pay to preserve it, and vice versa regarding for those students who expressed negative feelings. The coefficient estimate on the ISOLATED variable (coded as 1 if students reported that campus built heritage made them feel isolated or disconnected from their own cultural or family heritage and 0 otherwise) was negative and significant at the 5% level, as expected. This result indicates that one's own culture or family heritage (not specifically race) is more important in determining feelings of isolation, and that they would be less likely to be willing to pay to preserve campus built heritage. Note that the coefficient estimate on the ETHNIC variable (coded as 0 for students self identifies as 'white' and as 1 for all other respondents) was insignificant for the combined model. The pair-wise correlation coefficient for ISOLATED and ETHNIC was 0.17, indicating a lack of multi-collinearity. The coefficient estimate on the VISUAL variable was positive and significant at the 5% level. This indicates, as expected, that students who feel built heritage is an important part of the respective institutions' visual identity were more likely to be willing to pay to preserve campus built heritage.

A number of funding variables were included within the questionnaire. This information provides a "snap-shot" of what current students at both institutions feel are important areas for their respective institutions to fund. The coefficient estimates that were significantly different from zero included funding for the conservation of campus built heritage which was positive, as expected, and significant at the 10% level; and funding for library recourses which was also positive and significant at the 5% level. The other funding explanatory variables which included student bursaries/scholarships, student resources such as computer labs and classroom space, and funding of new cultural heritage such as museums, concert halls and theatres, were statistically insignificant. These results give some insight with regard to fundraising, such that current students or perhaps recent graduates are

unlikely to provide significant contributions toward things that may have more altruistic values, such as scholarships and new built heritage projects.

The INFLUENCE variable is associated with the question as to whether the respondents' indicated that the built heritage on their respective campuses influenced their choice to attend that particular institution or not. The coefficient estimate on the INFLUENCE variable was positive and significant at the 1% level. This result gives support to the idea that built heritage has some influence on student perceptions of the school and that it is an important part of school identity prior to a student making the choice to attend a particular institution.

Typical with regard to willingness to pay survey methods, follow-up questions are asked as an internal consistency test. Respondents were asked specifically how sure they were about the willingness to pay amount they chose. The explanatory variable FAIRSURE was coded as one if the respondent with fairly sure or very sure of their willingness to pay selection. The coefficient estimate on this variable was positive and significantly different from zero at the 1% level. These results provide an important internal consistency test with regard to the willingness to pay values.

Demographic variables that were included in the empirical model were gender, racial origin, year of study, and disciplinary area of study. None of the coefficient estimates on these demographic variables were significantly different from zero. *A priori* expectations were that, the longer a student was at an institution, the more they would be willing to pay to preserve built heritage; and that students studying humanities and social sciences would place higher value on their campus's built heritage. Further research at the individual institutional level appears warranted with regard to demographic information.

Maddala [25] notes that the maximum-likelihood estimates of the threshold or limit values should be positive, and increasing in magnitude ( $\gamma_1 < \gamma_2 < \gamma_3 < \gamma_4$ ) thereby indicating no specification error in the model. Table 3 shows these parameter estimates in our model are all positive, increasing in magnitude and for the combined model, statistically significant and the 5% level. Consistent with Maddala [25] these results indicate there is no misspecification error.

## **5. Conclusions and Observations**

This research, through an investigation of student knowledge of their university or college built heritage, provides a cross cultural comparison of two institutions with somewhat similar missions. The empirical investigation found no statistical significance between the data collected at Rhodes University and St. Mary's College of Maryland, thus allowing for a combined data empirical analysis.

It is not uncommon for universities and colleges to identify themselves in terms of historic campus buildings which may be seen as material symbols. This research found that current student knowledge of their respective campus' built heritage did not positively relate to the value they place on preservation, even though the visual identity was significant for students and influenced their decision to attend the particular institution. The lack of significance regarding the ETHNIC coefficient estimate may suggest that the use of an institution's visual identity in terms of built heritage may have important marketing implications, particularly in cases where universities or colleges are trying to attract students from more diverse backgrounds.

We found no significant relationships between willingness to pay to preserve an institution's built heritage and the demographic variables included in our empirical model. Year of study, disciplinary area of study, gender and ethnic background are not significantly related to a student's willingness to pay to preserve their campus's built heritage.

Fundraising implications that may note further investigation include the positive willingness to pay for conserving built heritage, yet funding for new construction was not significant. This may suggest that development offices wishing to raise funds for new construction from alumni should somehow relate the new construction plans to the historical setting of the campus in terms of built heritage.

Further research may also involve an investigation of the relationship between student feelings of isolation and demographic variables, given that the students of both of these institutions were historically white or predominately of European descent. Rhodes University's current student population is more ethnically diverse than St. Mary's College of Maryland. This may provide insight as to whether a critical level of ethnic diversity influences a student's feelings toward the university or college they attend, in particular when the research focus is targeting an institution's historical setting.

Campus built heritage and its relationship to its learning community is an area of research that can provide insight into many current issues facing higher education institutions, such as institutional marketing information, student diversity and potential fund raising. This paper begins to investigate these issues in a cross cultural context.



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**Table 1: Student feelings about campus built heritage**

	St Mary's (n=339) %	Rhodes (279) %
<b>Proud</b>	70.1	55.2
<b>Neutral</b>	27.5	43.4
<b>Negative</b>	0.3	1.3
<b>Don't know</b>	2.1	0
<b>Total</b>	100	100

**Table 2: Percentage Responses between racial groups and feelings about campus built heritage**

	St Mary's			Rhodes	
	Other Race Groups (n=42)	White (n=278)	African American (n=17)	Other Race Groups (n=169)	Black (n=122)
<b>Feelings</b>					
<b>Neutral/Negative/Don't Know</b>	38%	27%	65%	35%	57%
<b>Positive</b>	62%	73%	35%	65%	43%

**Table 3: Willingness to pay for campus built heritage**

WTP	St Mary's %	Rhodes %
<b>Zero or don't know</b>	37.5	48.5
<b>0.25%</b>	27.1	21.9
<b>0.5%</b>	19.5	12.8
<b>1%</b>	11.5	12.1
<b>&gt;1%</b>	4.4	4.7
<b>Total</b>	100	100

**Table 4: Student perceptions of other important funding categories**

<b>Funding Category</b>	<b>Percentage of ST MARYS students who chose this category as one of the 2 most important</b>	<b>Percentage of RHODES students who chose this category as one of the 2 most important</b>
Student bursaries / scholarships	67.0% (2)	52% (2)
Library resources	29.5% (3)	51% (3)
Conservation of historical built heritage	13.0% (4)	9.5% (4)
Student resources (like computer labs and lecture venues)	73.0% (1)	66% (1)
New cultural heritage (like museums, concert halls and theatres)	10.6% (5)	5.4% (5)

**Table 5: Ordered Probit Model Estimation Results**

Variable	Combined Rhodes & SMCM Model		Rhodes Model		SMCM Model	
	Coefficient (std. error)	P-Value	Coefficient (std. error)	P-Value	Coefficient (std. error)	P-Value
RHODES	0.085879 (0.140667)	0.5415	n/a	n/a	n/a	n/a
OLDNEW	-0.207209* (0.119140)	0.08208 8	-0.240999 (0.174933)	0.1683	-0.033364 (0.167810)	0.8424
DIFFFOUND	-0.000109* (6.76E-05)	0.1073	-0.000114 (8.54E-05)	0.1821	-0.000201* (0.000114)	0.0770
TOUR	-0.048169 (0.108662)	0.6576	-0.142179 (0.149450)	0.3414	0.079082 (0.160028)	0.6212
WEBHIST	0.091803 (0.101903)	0.3676	-0.029285 (0.154188)	0.8494	0.253116* (0.143826)	0.0784
FEELPOS	0.467933*** (0.113202)	0.0000	0.574607*** (0.167211)	0.0006	0.307813** (0.154866)	0.0469
FEELNEG	-7.478379*** (0.355961)	0.0000	-6.911037*** (0.340397)	0.0000	-7.615460*** (0.424103)	0.0000
ISOLATED	-0.353510** (0.182702)	0.0530	-0.161792 (0.223062)	0.4683	-0.524515** (0.276227)	0.0576
VISUAL	0.659340** (0.299275)	0.0276	0.831694 (0.563201)	0.1397	0.731505** (0.352124)	0.0378
FUNDHIST	0.332914* (0.199207)	0.0947	0.196270 (0.318798)	0.5381	0.555495** (0.259593)	0.0324
FUNDNEW	0.270145 (0.222187)	0.2240	0.298662 (0.409715)	0.4660	0.502834* (0.273917)	0.0664
FUNDSCHOL	-0.067698 (0.145182)	0.6410	-0.354226* (0.205924)	0.0854	0.355386* (0.200385)	0.0761
FUNDLIBR	0.288008** (0.151555)	0.0574	0.146617 (0.211830)	0.4888	0.605986*** (0.216364)	0.0051
FUNDSTRES	0.041338 (0.134794)	0.7591	-0.204400 (0.192324)	0.2879	0.402711** (0.192489)	0.0364
INFLUENCE	0.246050*** (0.099121)	0.0131	0.240270 (0.150409)	0.1102	0.308643** (0.139822)	0.0273
FAIRSURE	0.652493*** (0.095980)	0.0000	0.523344*** (0.148016)	0.0004	0.743040*** (0.131319)	0.0000
FEMALE	0.016924 (0.099219)	0.8646	0.112908 (0.168930)	0.5039	-0.096173 (0.132599)	0.4683

ETHNIC	-0.108909 (0.119106)	0.3605	-0.031586 (0.156384)	0.8399	-0.306620 (0.202815)	0.1306
FIRST_YR	0.051449 (0.125716)	0.6824	0.312652 (0.204892)	0.1270	-0.261963 (0.170196)	0.1238
THIRD_YR_MORE	0.162744 (0.111926)	0.1459	0.125884 (0.195564)	0.5198	0.162987 (0.153556)	0.2885
NAT_SC	-0.151983 (0.148814)	0.3071	-0.228251 (0.195860)	0.2439	-0.068286 (0.260604)	0.7933
SOC_SC	-0.036097 (0.138159)	0.7939	-0.162828 (0.192425)	0.3974	0.095682 (0.246209)	0.6976
HUMANITIES	-0.062210 (0.146686)	0.6715	0.048928 (0.211558)	0.8171	-0.019781 (0.258066)	0.9389
<b>LIMIT POINTS</b>						
LIMIT_2:C(24)	1.075186***	0.0034	0.845515	0.1629	1.776044***	0.0013
LIMIT_3:C(25)	1.841136***	0.0000	1.548136***	0.0120	2.644247***	0.0000
LIMIT_4:C(26)	2.477826***	0.0000	2.054836***	0.0010	3.424786***	0.0000
LIMIT_5:C(27)	3.281992***	0.0000	2.837925***	0.0000	4.297078***	0.0000

\*, \*\*, \*\*\* indicate level of significance at 10%, 5%, and 1% levels, respectively

LR Statistic (23 d.f.) = 161.18, with p-value=0.0000