

Presenting the University of Manitoba's archaeological collections online:
Implementation and user feedback

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Abstract

Professional codes of ethics and international doctrinal texts recognize the world's archaeological heritage as the common heritage of all humanity. As such, archaeologists are obligated to share research results, including collections, with the widest audience possible, and the Internet provides exciting ways in which this can be accomplished. As a community, Canadian universities are not at present providing adequate public access to the archaeological collections in their care, particularly via Web-based channels. In this thesis, I argue that Canadian universities should provide improved online collections access. I provided Web-based public access to a sample of the Grand Rapids (Manitoba) Survey collection, and solicited user feedback in the form of an online survey. The results show that a worldwide audience did access the collections, indicating vastly improved access. Survey results imply that a public audience does find archaeological collections interesting, and is capable of learning something from the style of Web presentation used here.

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1.0 Introduction

At a recent conference, a colleague who works with collections at a national historic site cornered me and asked “What is your thesis about?” To her horror, I replied that I was examining the lack of public access to archaeological collections in Canada. Visibly offended, she informed me that if a member of the public *ever* came to her expressing interest in seeing an object from the collection, she would “happily” retrieve said object from storage for viewing. She recruited an acquaintance from a large, provincial museum that happened to be walking past us to further support her assertion. “If someone from the public asked to see something from the collections, would you show them?” “Absolutely!”

The problem, it is here suggested, lies in the difference between *right* of access, and *ease* of access. The above anecdote illustrates that cultural heritage professionals, in general, agree with legislation and codes of ethics which state that the public has a right to access collections of heritage materials which are made, and cared for, in its trust.

Whether university-based archaeologists in Canada are doing enough to inform the public of the existence of these collections of heritage materials is debatable. “It is no longer sufficient just to preserve heritage resources, digital or otherwise. We must make sure that they are accessible, and this means taking the resource to the world, rather than expecting the world to come to us.” (Richards 2008:189). In addition, public reaction to established dissemination practices has not been widely studied. This thesis uses a Web-accessible database as a dissemination tool for archaeological collections housed in a university department, and presents user feedback about the Website.

Professional codes of ethics, legislation and international guidelines dictate that the results of archaeological investigations should be made available to a public audience, and then outline why this should be done. There exist numerous presentation media through which this public availability can be achieved. Archaeologists frequently use public lectures, newspaper and magazine articles, television programs, publicly-oriented pamphlets and brochures, and increasingly the Internet, to present research results to the

public. Museums, however, remain the primary way in which interpretations of the past based on archaeological research are communicated to a general public audience (Barker 2010: 294; Shanks and Tilley 1988:190; 1992:68; Stone 1997:28; Tilley 1989:113; Wallace 2008:395).

One of the primary functions of a museum is to interpret material culture to a public audience. Museums are unique as communication media based on their collections of objects, which are used to enhance and authenticate the message being presented. The care of objects recovered during archaeological investigations, however, is not restricted to museums. Institutions such as universities also house archaeological collections. Based on the definitions of Sullivan and Childs (2003:46), the difference between non-museum repositories and museums lies in their respective mission statements, and resultant commitment, or lack thereof, to presenting research results to a public audience. It is argued in this thesis that individuals who care for archaeological collections housed in academic repositories are bound by codes of ethics and international legislation to make the results of archaeological research (specifically, archaeological collections) publicly accessible regardless of whether a dedication to public education appears in their institutional mission statement.

Canadian museums have embraced the Internet as a way to share the collections in their care with a broad audience through virtual exhibits and collections database access. Canadian universities which house archaeological collections, however, have not. The research reported here provides public access to a subset of the archaeological collections housed in the Department of Anthropology at the University of Manitoba

(Winnipeg, Canada) via a Website called UM Archaeology (<http://umarchaeology.streetprint.org>).

1.1 Research Objectives

This thesis was guided by two objectives. First, to increase the accessibility of the archaeological collections housed at the University of Manitoba using a Web-based platform. Archaeological collections housed in Canadian universities are not widely publicly accessible online, and this thesis is an attempt to address the current situation. The second objective of this research was to evaluate the initiative described above by tracking site visitors, and collecting user feedback in the form of an online survey.

1.2 Chapter Outline

An historical review of public access to archaeological research results is presented (chapter 2) to place the current research in a broader historical context. Present-day ethical obligations, legislation and theoretical perspectives are discussed in chapter 3. A consideration of the Web as a tool for the dissemination of archaeological research results follows (chapter 4), including evaluations of some current initiatives to share archaeological information online. A summary of the materials (chapter 5) and methods (chapter 6) used in this research and the results obtained (chapter 7) precede interpretation and contextualization of the results within a wider framework (chapter 8). In conclusion, a statement of the contributions of this thesis is provided in addition to suggestions for future research (chapter 9).

2.0 Public access to archaeological collections: an historical perspective

Public access to archaeological collections has not always been a widely-discussed subject, and for a long time, the interpretation of the past was the sphere of a small and relatively uniform segment of the population. Yet, interest in the past seems to be a universal characteristic of human groups (Trigger 2006:40). While this interest may be universal, access to archaeological collections and interpretations of the past, are not. This chapter situates archaeology within the broader discipline of anthropology, and examines the linked histories of anthropology, archaeology, and museums. In addition, a discussion of the relationship between archaeology and museums as interpreters of the past is presented, as is the history of public access to archaeological collections at the department level.

2.1 Anthropology, archaeology and museums

Anthropology, through its four subdisciplines: socio-cultural anthropology, linguistic anthropology, physical anthropology and archaeology, is the holistic study of all aspects of humanity, through time and space. As a discipline, anthropology is relatively young. Distinct anthropological collections and dedicated museums of anthropology only appear around 1840 (Sturtevant 1969:621) (although collections containing objects that would today be classed with anthropological collections existed prior to this). Formal university instruction in anthropology dates to as recently as the late-1800's in the United States and England, although somewhat earlier in other parts of Europe (Sturtevant 1969:623). During its development as a scholarly discipline, anthropology has been said to have passed through three stages. During the Museum

Period (~1840 - ~1890), university instruction in anthropology had yet to emerge, and anthropologists were employed almost exclusively by museums (Sturtevant 1969:622). The collection of objects to form new, and augment existing, museum collections was considered an important part of fieldwork (Sturtevant 1969:622). Some suggest that museum anthropology was only entering its heyday around the 1890's (Stocking 1985:8), while others state that by this time, anthropology was already entering its next stage of development: the Museum-University Period (1890-1920) (Sturtevant 1969:622-624). By this time, formal university instruction in anthropology had begun in the United States and Europe; however most anthropologists were still employed by museums, which also provided much of the support for fieldwork (Sturtevant 1969:623). Anthropological collections housed in museums continued to play an important role in research during this period; however, this importance began to decline after 1900 (Sturtevant 1969:623-624). During these periods, anthropologists were meeting, to some extent, what today has become an explicitly stated ethical imperative – presenting research results to the public (American Anthropological Association 2009:4) – by virtue of their museum-based locations.

The University Period, which began around 1920, and in which the discipline remains, was marked by a shift in which anthropology moved from its traditional home in museums to being based almost exclusively in universities. During this period, research priorities have shifted, and the generation and study of collections no longer takes precedence (Sturtevant 1969:624). Not all subdisciplines of anthropology, however, have equally severed ties from museums. Archaeology, due to its study of, reliance on, and creation of, collections of material culture, maintained a closer relationship with

museums (Sturtevant 1969:628). Archaeologists themselves, however, have also moved to universities (Lurie 1981:180-1). This move to an academic setting, where public education is often not a part of the institutional mandate, means that public access to research results in the form of collections is no longer achieved simply as a result of the research setting. Due to this common past, archaeology and museums have many shared features which have prompted contemporary criticisms, as discussed in sections 2.3 and 2.4.

The beginnings of archaeology in Canada can be traced to Québec and Ontario; however, early work has been described as antiquarian and speculative in nature (Killan 1998:16; Noble 1972:3). The Canadian Institute, an organization whose members shared a general interest in the advancement of knowledge, and in particular Scottish-born scholar Daniel Wilson, have been credited with advancing Canadian archaeology into an increasingly scientific discipline in the mid- to late-1800's (Killan 1998:17). The Institute's publication, the *Canadian Journal*, was the first Canadian publication to regularly feature archaeology (Killan 1998:17). British-born scholar David Boyle played an important role in public access to archaeological research results in Canada. He acted as curator for the Institute's museum, and produced the *Annual Archaeological Reports for Ontario*, which, although highly regarded by professional audiences, were written for a general audience, and encouraged their participation in archaeological matters (Killan 1998:21-23).

The foundations of the Canadian museum community lay in the eastern part of the country, particularly in the Maritime provinces, as cabinets of curiosity, and in Québec, where collections were amassed by religious groups (Gillam 2001:53-56; Guthe and

Guthe 1958:3). Reverend Thomas McCulloch's collection in Pictou, Nova Scotia, is identified by some as the earliest museum in the country, but by the mid- to late-1800's, institutions were appearing in Ontario and Québec (Gillam 2001:54-60). By the time a 1932 survey of Canadian museums was reported, the greatest concentration of museums in Canada was by far in a small portion of Ontario and Québec, leading the authors to comment on "their relative scarcity in other parts of Canada" (Miers and Markham 1932:1).

Archaeology in Manitoba began slightly later than in Ontario and Québec; however, the first archaeologists in the western provinces adopted a scientific approach from the start (Noble 1972:3). Interest in Manitoba archaeology began in the late-1800's with the investigation of burial mounds in the south of the province (Noble 1972:3,22). The Historical and Scientific Society of Manitoba (HSSM) played a central role in archaeological fieldwork in the province, especially in the early years of its existence (Dyck 2009a:180). The HSSM was publicly funded, its activities were reported in local newspapers, and recovered materials were displayed almost immediately (Dyck 2009b:16). In addition, the HSSM maintained a museum at Winnipeg City Hall until 1905 (Dyck 2009a:181). Following the dissolution of the HSSM in 1910, archaeological work in Manitoba was conducted primarily by investigators coming from outside the province, until the reestablishment of the HSSM's archaeology program in 1945 (Dyck 2009a). Not long after, the University of Manitoba's Department of Anthropology began to sponsor archaeological fieldwork in the province (Pettipas et al. 1998:136). A discussion of the Department's commitment to public education and outreach is provided below.

2.2 The Department of Anthropology and public accessibility

The University of Manitoba is home to a collection of archaeological materials, curated by the Department of Anthropology. In total, the Department's holdings number approximately 250,000 artefacts. The collections are primarily archaeological in nature, and include archival materials such as maps and field notes generated during field work. In addition, the Department houses ethnographic materials donated as parts of larger collections, comparative collections of botanical and faunal material used in teaching and research, and replica hominid fossils used in teaching.

Collections and museums located on university campuses are unique. These materials are used to provide a service to the university community of faculty and students, but increasingly find themselves held accountable to a general public audience as well (Nicholson 1971:7; Tirrell 2000:159; Willumson 2000:15). Museums located on university campuses, or elsewhere, are distinctive in that they house collections of objects, and prioritize the education of a public audience via interpretation and display of these collections. Academic repositories without affiliated museums generally lack an explicit commitment on the topic of educating the general public. The Department falls into the latter category. In the absence of a separate mission statement outlining its function and audience, the Department uses that of the university as a whole, which strives "...to create, preserve and communicate knowledge and, thereby, contribute to the cultural, social and economic well-being of the people of Manitoba, Canada, and the World" (University of Manitoba n.d.). This statement acknowledges the university's, and subsequently the Department's, commitment to a broader community than that located directly on campus. Additionally, because the collection consists primarily of

archaeological materials, statements of ethics and international legislation regarding the archaeological heritage, which identify public education and public accessibility as professional obligations, are relevant to this discussion (see Section 3.2).

Department members *do* have a history of actively disseminating research results to the public (Pettipas et al. 1998:144). In the past, booklets and articles written specifically for a non-specialist audience were produced (Pettipas et al. 1998:144). More recently, the Department was involved with a project of the Manitoba Archaeological Society: the creation of the Manitoba Heritage Network, an early attempt to disseminate information about Manitoba's archaeological heritage via the Web (Manitoba Archaeological Society 1998). These public education strategies do not involve the display of, or access to, objects.

The need for exhibit and display space has long been recognized within the Department. Internal documents outline the need for display cabinets dedicated to archaeology (Anthropology Space Committee 1970), and a renovation floor plan includes a clearly labeled "Anthropology Museum" (Kelly 1983). A museum exhibit was briefly mounted in this space in the 1990's, but could not be sustained due to increasing faculty space requirements (David Stymeist, personal communication 2007). At present, teaching and research remain the Department's focus. Although a small number of display cabinets exist for the Department's use, they are neither featured nor regularly updated, and some have never housed an exhibit or display. Despite the presence of display cases, the Department does not include a museum as one of its administrative units, nor does its mission explicitly address public education, and priorities remain elsewhere. One

consequence of current technology, however, is that public access to collections can be provided without the expense and time commitment required to create an exhibit.

The use of the Internet to disseminate and search for information has increased a great deal in recent decades. It has become increasingly simple to share collections with the public without requiring physical space to do so, and Canadian museums have fully embraced this strategy. In response to recognized exhibit and display shortcomings, Department of Anthropology staff embarked upon a project in 2007 to digitize the archaeological collections in their care and to make these digital records available via the Canadian Heritage Information Network's (CHIN) Artefacts Canada (Schwimmer 2007:1). At the time of writing, no records had yet been uploaded. This thesis is an additional, and separate, attempt to facilitate public access to the collections of cultural heritage materials housed at the University of Manitoba, and to solicit and analyze public feedback regarding the online presentation. The current trend toward increased public access is in part a response to criticisms of the practices of archaeology and museums. The following section discusses the basis for these criticisms.

2.3 Archaeology and museums: Foundations for criticism

Both the discipline of archaeology and the museum as a public institution can trace their origins to Europe and the West (Lewis 1992: 12; Mulvaney 1983:88; Swain 2007:5), and attribute their subsequent spread to European colonial expansion (Lewis 1992:12; Scarre 1990:12). Today's museums have their foundation in the European Renaissance (14th-15th C.) during which private collections of natural and man-made specimens were amassed as symbols of wealth and power, and displayed together in

Cabinets of Curiosities (Lurie 1981:182). It was during this time that ‘museum’ came to identify a “repository of objects of interest”, and the classical definition of the *museion* as “a place for study” was abandoned (August 1983:137-8,140). Since the 18th century, the word ‘museum’ has meant, in popular usage, “a building used for the storage and exhibition of historic and natural objects” (Lewis 1992:5).

Private collections preceded the establishment of public museums (Smith 1989:6). In the late 17th century, museums began to be opened to the public (Alexander 1979:8); however the “general museum phenomenon” did not appear until the 18th century (Horne 1984:15), with the prototypes for modern museums emerging in the late 18th and early 19th centuries (Bennett 1995:19). For many years, museums remained inaccessible to most, “both physically and perceptually” (Dixon et al. 1974:1). As members of the public were welcomed into museums, there was a concurrent development of the presentation of expert observations on “*other* cultural, class, social and historical identities” (Smith and Campbell 1998:176). Since its inception, the discipline of archaeology has dominated the construction of the past in colonial contexts (Liebmann 2008:6), existing in opposition to the “historical narratives” of local peoples (McNiven and Russell 2008:424). Archaeological evidence was frequently misinterpreted and manipulated to offer ‘proof’ of European superiority (Scarre 1990:13). Critical reflection shows that exhibitions often served to legitimize dominant ideologies, and this criticism continues today.

European beliefs about their own superiority flourished during colonial expansion as other peoples, plants and animals were encountered. These beliefs were, it was believed, supported by archaeological evidence and presented to the public in museums. During this time of ‘discovery’, scholars working in museums were “actively” involved

in the collection of materials from European colonies, and their subsequent description and classification (Smith and Campbell 1998:176). The process of classification served to place the natural and social world in order, making it understandable (Murray 1904:232). While Near Eastern and European antiquities were exhibited in fine art museums, archaeological and ethnographic materials of indigenous North Americans and other “primitive societies” were housed in museums of natural history, demonstrating a perceived inequality of the material culture of certain cultural groups, and by extension the makers of those objects (Ames 1992:51; Gillam 2001:57; McGuire 1992:822; Trigger 2006:187).

In the 18th century, archaeological interpretations in both Western Europe and the United States were heavily influenced by ideas of unilineal cultural evolution (Trigger 2006:166). As Charles Darwin’s ideas of the evolution of species by means of natural selection were pervading the natural sciences, similar ideas were influencing the study of human culture (McGee and Warms 2004:8-9). American anthropologist Lewis Henry Morgan divided societies into stages of savagery, barbarism and civilization based in part on technological innovations (1978[1877]:9-12). He suggested that the predecessors of contemporary Western people had “passed through an experience similar to that of existing barbarous and savage tribes” (Morgan 1978[1877]:8). Edward Burnett Tylor, a British anthropologist, viewed societal differences as representing the “stages of development of evolution” (Tylor 1920:1). Development was conceived of as linear, with European and American nations and “savage tribes” placed at opposing ends (Tylor 1920:26). The remainder of humankind was placed along the continuum based on whether their social and technological institutions resembled more closely those of

“savage or cultured life” (Tylor 1920:26). Scholars believed that, compared with Europe, minimal cultural evolution had taken place in the United States prior to European contact (Trigger 2006:166). Indeed, archaeologists placed indigenous peoples near the bottom of their evolutionary continua (Smith and Campbell 1998:173). These theoretical perspectives were presented to the public in museums, which contributed to the perception of non-European societies as inferior and the justification of the colonial enterprise.

Not all scholars, however, believed that the evolutionary schemes popular at the time were appropriate for the display and interpretation of material culture. German anthropologist Franz Boas argued that anthropological collections were fundamentally different from natural history collections, and that, as a result, the typological and evolutionary strategies typically used to exhibit natural history specimens were inadequate for anthropological objects (Boas 1907:923). Rather than displaying together representative examples of a single type of object from many cultural groups, he advocated assembling all objects from a single cultural group together for exhibit (Boas 1887; Jacknis 1985:77-9; Stocking 1968:155-6). Despite Boas’ novel (at the time) approach to exhibiting anthropological collections, the history, of archaeology and museums, as well as practices and principles that remained until very recently, have resulted in the direction of similar criticisms at both.

2.4 Criticisms and current practices

An increase in the amount of critical literature about museums has coincided with the proliferation, and diversification, of museums themselves since the 1980’s

(MacDonald 1996:14). Similarly, the development of post-processual archaeologies has encouraged critical examination of the discipline of archaeology during the same time frame. The following paragraphs focus on criticisms of interpretations of the past which are addressed by the Web-accessible collection produced as part of this thesis.

Archaeologists and museum professionals have been criticized for not adequately representing the views of the diverse publics they serve in their interpretations of the past. The museum has traditionally been the domain of an elite few within any given society, resulting in the exclusion of large segments of the population (Merriman 1991:2). Similarly, at some point in the distant past, it was decided, possibly by an archaeologist, that the archaeological record should be interpreted solely by trained professionals (Ucko 1996:xi). Thus, the disciplines of anthropology, archaeology and museology have been, and remain, dominated by (but not the exclusive domain of) white, middle-upper class males (Conkey and Spector 1984:4; Hays-Gilpin 2000:90-93; Swain 2007:51). This unequal balance results in interpretations of the past created by a small, relatively homogeneous subpopulation. Unfortunately, “[n]o one has ever devised a method for detaching the scholar from the circumstances of life, from the fact of his involvement (conscious or unconscious) with a class, a set of beliefs, a social position, or from the mere activity of being a member of society” (Said 1978:10). The vocal discontent of minority populations with museum practices and methodologies that were developed during the colonial era have led to changes (Simpson 2001:2-3). Over the last 15 years, other and sometimes conflicting viewpoints have begun to appear in the exhibits of archaeology and anthropology museums, which can be the result of collaborative efforts between museum and the community from which the objects in question originated

(Herle 2000; Hughes et al. 2008; Srinivasan et al. 2010:741).

Yet, Srinivasan and colleagues (2010:741) point out that multivocal exhibits are only temporary. They argue that a shift in how objects are catalogued is necessary, and it is important that the divergent viewpoints present in exhibits become a part of the object's permanent institutional record (Srinivasan et al. 2010:741,747). If access to archaeological collections is restricted to the same population, interpretations will necessarily continue to be influenced by the worldviews of a privileged few. If, however, access to archaeological collections is provided to a wider and more diverse public, the questions asked, and the interpretations of the material become themselves more varied, leading to more complete and potentially more publicly relevant interpretations of the past. While access to collections of objects in this thesis is interpreted as a positive phenomenon, the use of objects to illustrate historical narratives has been criticized.

Objects are what differentiate museum from other cultural institutions, forms of instruction and entertainment (Hull 1997:30; Lurie 1981:184), and are the major subject of archaeological investigation. These objects may be used to legitimize biased interpretations of the past. The decisions made during collection (what is collected / what is not), research and publication on collections (what is studied / what is not), and finally exhibition development (what is exhibited / what is not) all serve to reduce the amount of materials the visiting public actually gets to see and experience in a museum (Pearce 1990:33). In addition, common everyday items are often overlooked in favour of “extraordinary, often ritual, objects” in the construction of displays (Dahl and Stadel 2000:160). This process can be seen to provide a potentially distorted impression of the past. When texts are exhibited with objects, as in a museum, or when artefacts are the

basis for interpretations of the past, as in archaeology, the very existence of the objects lends a tangible authenticity to the narratives being created (McGuire 1992:817; Shanks and Hodder 1995:26; Shanks and Tilley 1992:75). Similarly, genuine artefacts (as opposed to replicas) are viewed to “have a power for direct and immediate communication” that written or photographed two-dimensional history does not (Fyfe and Ross 1996:146). Despite these concerns with the impact of objects, public surveys show an across-the-board desire to see “the real thing” (Pearce 1990:195), and with mandates that include exhibiting collections to the public, museums are the institution in which the real thing can be experienced. It has been suggested that by focusing on the process of creating narratives of the past, rather than the objects themselves, exhibits could foster a more critically aware public that asks increasingly sophisticated questions about traditional narratives, discriminates between competing narratives and challenges the ways in which the past is constructed (Leone 1981b:309; 1983:35-6). A focus on the process of doing archaeology and creating narratives of the past, particularly at the expense of the real thing the public is so intent upon experiencing may, however, solely serve to alienate the audiences museums and archaeologists are hoping to attract. In the context of this thesis, a choice was made to focus on all objects, without prejudice for what might be more aesthetically pleasing. In other words, pot sherds and lithic flakes were presented on the Website alongside complete projectile points and cutlery. Participant feedback suggests that visitors to UM Archaeology did learn things (that were not explicitly stated) about the discipline and process of archaeology through the presentation of objects. While objects can be viewed as a physical authentication of interpretations of the past, they are not the only entities with this legitimizing power.

The language used in interpretations of the past has come under scrutiny. Skeates (2002:10-11) draws on a number of sources to criticize conventional museum texts. Traditionally, texts in archaeology museums have been written in a tone which suggests that objective facts are being presented, masking the inherent bias of the creator(s) of the exhibit and the author(s) of the text (Coxall 1991:92-93; Skeates 2002:209). The language used implies that exhibits have been written by indisputable, omniscient experts, and that learning about the past is a process of “passive discovery and subsequent description” (Shanks and Tilley 1992:90). The texts in an institution’s permanent galleries become “imbued with a received aura of unquestioned truth” (Coxall 1991:93), when they are, in fact, narratives of the past, written to be persuasive (Shanks and Tilley 1992:68-69). Furthermore, specialists often create texts which are jargon-laden (Skeates 2002:211) and use vocabulary which favours the discipline of archaeology and reduces the degree to which nonexperts can interact with the discipline (McNiven and Russell 2008:429). This critique of language can also be extended to the way in which museum objects are catalogued. A study by Srinivasan and colleagues suggests that a disjuncture exists between what is recorded about an object in museum catalogues (clinical, scientific descriptions), and how objects are assigned meaning (stories, descriptions of use) by the local community of origin (Srinivasan et al. 2010:739). For UM Archaeology, I decided to retain the specialist terminology with which the collection was originally catalogued and to also provide a glossary to help non-specialist users. An additional field was added to the catalogue (Introduction) to provide some context to users in both artefact and site records; however no narratives were sought, or presented on, the site. See section 8.2.1 for discussions of whether the glossary adequately met user

needs, and the future potential for adding narratives to the site.

Both archaeology and museums have engaged in a parallel and on-going process of self-reflection in recent decades (Merriman 1999:2) as a result of criticisms. In museums, this process has coincided with increased questioning of assumptions by those traditionally omitted from, or marginalized by, museum narratives (MacDonald 1996:9). There is a recognition that multiple perspectives exist from which the past can be viewed, and there is more than one story to tell (Merriman 1999:6). As a result, interpretive approaches have moved toward a more humanistic philosophy, with visitors becoming active contributors as opposed to passive consumers (Merriman 1999:7; 2000:305); a shift from the simple communication of the earlier 20th century to a dialogue. Evidence of this philosophy can be seen in a contemporary definition of the museum as “the dynamic relationship between a collection, those who curate it, and the public” (Swain 2007:91). In archaeology, this self-reflection has been heavily influenced by post-processual archaeologies, and focus has rested on relations of inequality based on gender, power and ethnicity (McNiven and Russell 2008:423). Despite these strides towards more inclusive interpretations of the past, criticisms of past years remain relevant (Simpson 2001:11,15). A discussion of how the Internet can be used in archaeology to overcome some of these criticisms is presented in section 4.1. The post-processual theoretical framework guiding this thesis is presented in the following chapter in the context of public access to archaeological collections.

3.0 Public access to archaeological collections: Why and for whom?

Archaeologists often allude to the idea that archaeological research should be made available to the public; however it has been suggested that their commitment to achieving this goal remains suspect (Ucko 1996:ix). This chapter presents the theoretical framework that directed this thesis. An overview of the doctrinal texts which guide the work of those interpreting the past in Canada, with a focus on public education and outreach, is presented, in addition to a review of previous research on the subject of audiences for archaeological research.

3.1 Theoretical framework

The following paragraphs will situate this research in a postmodern and post-processual theoretical framework. Postmodernism emerged in the social sciences during the 1960's - 1970's, at a time when traditionally repressed segments of the population were expressing their frustrations and fighting to be heard (Hutcheon 2006:120). During the ongoing period of decolonization, questions have emerged about the grand narratives espoused by colonizing nations, and the limitations of a solely Euro-American view of history have begun to be recognized (Hutcheon 2006:120). Interpretations of the past presented in museums and produced by archaeologists were not exempt from these criticisms (Simpson 2001:9). A postmodern perspective denies the existence of a single, objective truth, and believes that every event can be viewed and experienced from multiple perspectives, each as valid as the next (Trigger 2006:447).

In archaeology, postmodernism has been equated with post-processualism (Nicholas and Andrews 1997:7; Smith and Campbell 1998:174; Swain 2007:50);

however, some do not subscribe to this view (Shanks 2008:133; Trigger 2006:448), and others use the term “interpretive archaeologies” proposed by Shanks and Hodder (1995:5). Rather than representing a unified body of theory, post-processual archaeologies are multiple theoretical approaches that share a basis in critique and concern with social practice (Shanks 2008:142). Fundamentally, post-processual approaches strive to define the role of archaeology in contemporary society (Smith and Campbell 1998:174).

A post-processual framework guides archaeologists to examine their influence on society and vice versa, to reflexively consider their roles as professionals, to recognize and include interpretations of the past narrated by others, and to accept that all narratives of the past are, in fact, narratives. Despite the suggestion that achieving a completely accurate retelling of past events is an impossible task (Merriman 1999:4), a unifying goal among these approaches is to develop more comprehensive interpretations of the past.

3.1.1 Critical theory

Critical theory is generally associated with the Institute of Social Research, particularly those members identified as constituting the Frankfurt school, and more recently, with the work of Jürgen Habermas (Held 1980:14). These two sources are often cited as the foundations of critical approaches in archaeology (Leone 1986:417; Leone et al. 1987:283; Palus et al. 2006:85; Wylie 2002:155). The fundamental goal of philosophers associated with the Frankfurt school was to apply Marx’s idea that the production of knowledge is tied up in class interests to contemporary situations (Leone et al. 1987:283). Habermas views self-reflection as a tool that allows individuals to affect

social change (Preucel 1991:24).

The goal of archaeology is to reconstruct events and lifeways that occurred and existed in the past by examining material remains. The archaeological record is not, however, a complete chronicle of past activities. It is affected by cultural and noncultural formation processes in the past (Schiffer 1975:838), and by selective processes in the present from excavation to exhibition (Pearce 1990: 33). Thus, archaeological interpretations and exhibitions are based on a fraction of the material culture that actually existed in the past. In addition, the objects that *are* recovered are not objective facts awaiting discovery (Shanks and Hodder 1995:11). Rather, people living in the present ascribe meanings to objects that were produced and used in the past (Leone 1981a:12). It is widely accepted that archaeology and archaeologists are influenced by the political, economic and social climate in which they exist (Hanna 1997:72; Leone et al. 1987:284; Trigger 1984:356; see also Said 1978:10), although some eschew this perspective and maintain that an objective reconstruction of the past is possible (e.g. Binford 1964; 1968). The goal of critical archaeology is to “achieve less contingent knowledge” by recognizing the relationship between archaeology and politics and inquiring from what perspective interpretations are generated (Leone et al. 1987:284). In addition, it challenges the authority of academics and the role of archaeologists as those deemed best able to make sense of the archaeological record (Palus et al. 2006:93).

The concepts of ideology and self-conscious reflection are central to critical approaches in archaeology, and will be considered in turn. Definitions of ideology as applied to the interpretation of the past are numerous; however Marx’s conception of the term represents the foundation for most of the ensuing dialogue (Miller and Tilley

1984:8). Ideology represents the taken-for-granted assumptions that function to obscure and naturalize the inequalities present in the social order, permitting society to be reproduced in its current form (Giddens 1979:193-195; Handsman and Leone 1989:118; Leone 1984:26; Leone et al. 1987:284; Miller and Tilley 1984:10). Critical archaeology considers any allusion to the past (be it history, archaeology, folklore) as ideological and employed to “legitimize the dominant position” (Hodder 1992:88; Leone and Preucel 1992:117). Archaeology and archaeologists have been criticized for projecting present-day ideologies onto the past for the benefit of contemporary interests (Handsman and Leone 1989:118; Shanks and Tilley 1992:8). It has been suggested that an awareness of ideology and its influence on the questions, assumptions and conclusions of science may permit practitioners to break away from its constraints (Leone et al. 1987:284). If, however, the interpretation of the past as produced by archaeology and museum displays remains the domain of the elite, there is a good chance that these interpretations will continue to represent the interests of the dominant class.

The idea of reflexivity, critical self-reflection or self-consciousness pervades literature on critical archaeology. Wylie (1985:154) suggests that archaeologists used the self-consciousness typical of critical approaches in an attempt to become relevant. It could be argued that, as the study of humankind’s material history, archaeology is inherently relevant to contemporary and future populations. Hodder (2005:648) defines reflexivity as “the examination of the effects of archaeological assumptions and actions on the various communities involved in an archaeological process, including other archaeologists and nonarchaeological communities”. Self-consciousness is an important tool for considering and critiquing the relationship between social context and the

production of knowledge via research (Wylie 1985:137). Additionally, it can serve to expose dominant ideologies and identify the degree to which knowledge is appropriated to serve contemporary interests (Wylie 1985:137). All interpretations of the past are partial (Wylie 2008:203), and reflexivity can aid in exposing the agendas for which the past is created (Hodder 1991:10). In addition, the identification of structures within the discipline which function to make it exclusive can facilitate the critical inclusion of other interpretations (Hodder 1991:10). The self-consciousness advocated by a critical theory approach can allow researchers to identify the societal factors influencing their conclusions, and as a result move towards less contingent interpretations of the past (Leone et al. 1987:284-5).

3.1.2 Interpretive archaeologies and multivocality

“Archaeologists...always have done and can do no other than interpret the past” (Shanks and Hodder 1995:28). Interpretations of the past, however, are contingent and multiple. Archaeologist Glyn Daniel noted in 1975 that it was difficult for members of the profession to accept that the ‘truth’ postulated at any given point in history was “but one of many ways of looking at the past”; the idea of “the final truth” can be destroyed as new evidence is uncovered (Daniel 1975:374). One can imagine that if archaeologists had difficulty accepting the fact that the truths put forward by their peers changed over time, accepting that other, non-experts, may have a stake in the past and offer interpretations must have been near-impossible. Questions posed, however, “by male and middle-class academics of twentieth-century Western nation states” (Shanks and Hodder 1995:16) are not the only questions to be asked of the archaeological record.

People are entitled to develop a fulfilling connection to the past as represented in the archaeological record (Smith 2006:134; Smith et al. 2004:236), as it is the tangible history of all human life on earth (ICOMOS 1990). Individuals can use the past to better understand and feel secure in their place in the contemporary physical and social world (Knudson 1991:3). This personal relationship to archaeology is particularly relevant in post-colonial nations such as Canada. The discipline of archaeology, and the museum and university as institutions, are all Western constructs involved in the study of an archaeological record comprised in Canada primarily of the cultural heritage of First Peoples. These groups can use archaeology to maintain their identity despite increasing Westernization (Hodder 1991:14). In Canada, as in other nations, the need for the participation of First Peoples in interpreting and caring for their own cultural heritage is being explicitly recognized (CAA 1997:6, 2011; CMA 1999:11; Task Force 1992:1). An interpretive archaeology approach views the interpretation of the past as a continual process: a final, authoritative version of ‘the past’ is unattainable (Shanks and Hodder 1995:5). Furthermore, multiple interpretations of the same archaeological materials and assemblages are possible; these interpretations can be expected to vary based on one’s “purposes, needs, [and] desires” (Shanks and Hodder 1995:5).

Most archaeologists agree that even in an interpretive and multivocal context, not all possible interpretations of the past are equally valid, and mechanisms to evaluate possible explanations of the archaeological record are necessary (Hodder 1991:9; Renfrew 1989:36-38; Shanks 2008:139; Smith 1977:605-606). It has been suggested that neither extreme is favourable: neither the hyperrelativist view that all interpretations are equal, nor the potentially injurious view that scholars have a right to encroach upon the

culture and history of others simply for the good of science, are beneficial (Ames 1992:14). Multivocality in archaeology can be viewed as a source of alternative explanations to be tested against archaeological data (Trigger 2008:190). Canadian archaeologist Bruce Trigger perceived increased questioning and interpretation of the archaeological past as beneficial, and viewed the role of the archaeologist in a multivocal context as identifying interpretations which are not supported by the archaeological record, “and [synthesizing] divergent viewpoints to produce more holistic explanations of the past” (Trigger 2008:190). Others promote a widening of the definition of “expert communities” to include anyone or any community with “a lasting, historical, and informed relationship with the cultural object”, including Indigenous peoples, curators and archaeologists (Srinivasan et al. 2009:267,269-270). British archaeologist Ian Hodder (1991:10) advocates a “guarded objectivity” of the past to allow disenfranchised groups to utilize the archaeological record to support their interpretations, while simultaneously distinguishing these assertions from those of “fringe archaeologies”. Canadian archaeologist Robert McGhee (2008:580) argues that archaeologists can construct a “reasonably objective view of the past”, provided they are conscious of their own biases and of the views of others from both within and outside of their community. It is, however, important that everyone who wishes to participate in interpreting the past by including their voice be afforded the opportunity to do so (Hodder 1991:9; Leone and Preucel 1992:132).

The ways in which non-specialists interact with and interpret the past may be different than those methods employed by archaeologists. Disregarding these “other ways of knowing” serves to sever the connection between people and their heritage (Smith et

al. 2004:326). Archaeologists determine the likelihood of an hypothesis based on previous knowledge (Salmon 1976:378-379), and conclude a most-likely interpretation based on observations. It is, however, important to recognize that the most-likely interpretation (as identified by archaeologists) is not the only possible interpretation, and in fact may not be antithetical to other interpretations (e.g. Brownlee and Syms 1999). Furthermore, just as the professional's interpretation was based on prior knowledge, these alternative interpretations may be based on knowledge to which the archaeologist is not privy. Rather than defining which of multiple interpretations represents 'the truth', it has been suggested that individuals (including archaeologists) are welcome to believe whichever interpretation they wish, with the caveat that this 'belief' does not correlate to 'the truth' (Lucas 1995:41). Lucas (1995:41) asserts that it is incumbent upon archaeologists, as those with "the power of vocality", to ensure that all views are represented. Others, however, contend that the uncritical acceptance and promulgation of scientifically unsupported claims will undermine disciplinary integrity (McGhee 2008:591).

3.1.3 Relevance to this thesis

It has been suggested that the past "is locked up both intellectually and institutionally" (Hodder 1991:9), which can result in the (perceived or actual) exclusion of those who wish to be involved in the study of the/their past (Nicholas 2009:212). The discipline of archaeology has for a long time been the domain of a relatively homogeneous and elite group, and as a result, research questions and interpretations represented their interests and biases. It has since been recognized that this practice has resulted in a comparatively narrow view of the past. Professional archaeologists are not

the only group with an interest in what can be learned from the archaeological record. Anyone with an interest has a right to be included in the study of their past. The general public, however, cannot participate in the construction of the past if the results of archaeological research are not being shared. It has been suggested that to achieve a truly multivocal discipline, the way archaeology is practiced needs a fundamental overhaul (Hodder 2008:196). While it is not possible to change the way in which past excavations were conducted, it is possible to change the way in which present-day collections are made, treated and shared.

Access to the archaeological collections housed in the Anthropology Department at the University of Manitoba has been restricted primarily to faculty members and students for many years. The relatively simple act of permitting online public access to a portion of these holdings, the Grand Rapids Survey collection, addresses many of the concerns outlined above. Those not involved with archaeological collections as a museum professional or archaeologist generally only have straightforward access to the small amount of archaeological material made available in museums. Their participation in constructing the archaeological past is critical, but cannot occur if professionals are not active facilitators. Increased accessibility to archaeological collections increases the opportunity for interpretation and questioning of archaeological materials, of their identification and of archaeologists themselves. As increased access is provided, those of different socio-economic and ethnic backgrounds will be increasingly able to apply their own perspective to the interpretation of the archaeological record. Finally, in this project, all recoveries are presented, as opposed to only type specimens and complete and/or unique artefacts. This procedure was adopted with the intention of educating a public

audience about what materials archaeologists *actually* work with, and demonstrating that the meanings of recovered materials are *not* self-evident, revealing a more complete and accurate picture of archaeological recoveries. Providing online public access to the Grand Rapids Survey collection has made possible different and increased questioning of the recovered materials. Involving multiple voices in interpretations of the past, including those that do not belong to the dominant group, can help in the construction of a more complete picture of history (Smith 2006:134; Smith et al. 2004:326). In addition, the incorporation of disenfranchised voices may allow certain segments of contemporary populations to develop a personally meaningful relationship with the past (Wallace 2008:401). Section 9.1 presents a discussion of the potential for multivocal interpretations on UM Archaeology.

3.2 Public education and outreach: A professional imperative

Obligations at the international level

Internationally, the United Nations Educational, Scientific and Cultural Organization (UNESCO) has drafted and approved many instruments aimed at the protection of the world's cultural and natural heritage. One of the philosophies underlying these documents is the notion that the heritage of each country or people forms a part of a collective common heritage of humanity. Although this concept has been criticized, as some groups do not share the philosophy and maintain that their heritage is *their* heritage (Nicholas 2009:203), it remains integral to UNESCO's concept of heritage. Additionally, it helps to explain UNESCO's desire to provide public access to cultural heritage – if this cultural heritage is all part of an entity known as humanity's common heritage, why

would any part of this heritage not be available to all? The obligation to perform public education appears in UNESCO documents related to archaeology. The *World Heritage Convention* indicates that educational and information programs be undertaken by states parties to the convention to increase among people an “appreciation and respect” for this heritage, and to enlighten the public as to the threats facing this heritage (UNESCO 1983[1972a]:13).

The *Recommendation on International Principles Applicable to Archaeological Excavations* lists “Education of the Public” as one of its general principles. The Recommendation encourages the appropriate authority to develop educational programs and activities including, but not limited to, formal school courses, guided tours, public excavations, public lectures and publications written for a public audience (UNESCO 1983[1956]:109). The intent of these educational measures is said to be “to arouse and develop respect and affection for the remains of the past” (UNESCO 1983[1956]:13).

Objects recovered during archaeological excavation are included in the definition of movable cultural property as defined in the *Recommendation for the Protection of Movable Cultural Property* (UNESCO 1983[1978]). A number of protective measures are recommended, including “Education and Information”. Member States are to encourage local, regional and national authorities to provide all segments of the population with ways to “acquire knowledge and respect for movable cultural property” (UNESCO 1983[1978]:221) and also to stress the importance of cultural property to the public, and to promote opportunities to participate in its protection. Goals of these education measures are to increase knowledge of the importance of cultural property, and its need for protection, specifically for preserving local cultural identity.

Public education is addressed in article 7 of *The Charter for the Management and Protection of the Archaeological Heritage*, produced by the International Council on Monuments and Sites (ICOMOS) (ICOMOS 1990). It suggests that public education is the most important way to contribute to public understanding of how modern society developed and why the archaeological record warrants protection. Public presentations should mirror the current state of disciplinary knowledge (and subsequently be frequently revised) and should reflect multiple ways of knowing and understanding the past.

The code of ethics of the International Council of Museums (ICOM) governs the work of professionals working in museums, where many archaeological collections are housed, and recognizes the free availability of collections and associated information as an important responsibility of museums (ICOM 2006:6). The United Nations Declaration on the Rights of Indigenous Peoples recognizes the right of Indigenous peoples “to maintain, protect and develop the past, present and future manifestations of their cultures”, including archaeological sites and artefacts (United Nations 2007).

A common theme among these documents is that archaeological heritage belongs to everyone: everyone has the right to be made aware of research results, and everyone has the right to engage with the past. The previously discussed documents and their issuing organizations are international in scope, which results in texts that are necessarily founded on broad principles that are widely applicable. As a result, it has been suggested that the *World Heritage Convention* is too vague to be practically applied (Dingli 2006:225, 227). Due to their global nature, however, international doctrinal texts cannot address every situation that may arise in particular nations (ICOMOS 1990). As a result, many documents include an explicit expectation that individual nations will draft their

own standards to augment those provided internationally (ICOM 2006:iv; ICOMOS 1990), or use whatever legislative power exists in their specific country to enact the standards set forth in recommendations and conventions (UNESCO 1983[1956]:106; 1983[1960]:120; 1983[1972a]:81; 1983[1972b]:169; 1983[1978]:214).

Legislation

In Canada, at the federal level, a number of documents address archaeological heritage. The *Government of Canada Archaeological Heritage Policy Framework* states that the Government of Canada will “protect and manage archaeological resources” (Minister of Supply and Services 1990; see also Denhez 2000:1); however this document does not address public access, education or outreach. The *Canadian Museum Policy* (Minister of Communications 1990a) is a more substantial document, the first objective of which focuses on access to heritage by “present and future generations of Canadians” (Minister of Communications 1990a:12). The Policy is founded upon the idea that all Canadians should have access to museum collections, through museum visits, publications and/or current technologies (Minister of Communications 1990a:13).

National legislation aimed at protecting cultural heritage, including archaeological sites, monuments and artefacts, exists in most countries (Swain 2007:58). A 1974 review of national legislations governing cultural materials contains summaries of the heritage legislation of 128 countries (Burnham 1974). In addition, eight countries or territories governed by the national legislation of another country are mentioned, as well as three countries with no heritage legislation. Legislation for an additional 17 countries could not be obtained, while 21 countries, including Canada, were listed as having new laws in

preparation (Burnham 1974:22). Interestingly, only four countries of the 21 preparing new legislation, including Canada, did not have then-current legislation. Almost 20 years later, in 1990, a “Proposed Act respecting the protection of the archaeological heritage of Canada” was introduced into the House of Commons (Minister of Communications 1990b). During the consultation process, concerns were raised over the concept of Crown ownership of archaeological materials (Burley 1994:90). Additionally, the draft legislation was perceived to encroach upon issues covered in other federal acts, and on areas under provincial/territorial jurisdiction (Lea and Smardz 2000:142). The proposed legislation never became law. Since that time, the lack of federal heritage legislation in Canada has been continuously noted (Nadon 2001:63; Lee 2002; Pokotylo 2002:108; Pokotylo and Mason 2010:52-53; Yellowhorn 1999). A report prepared by Heritage Canada, although interested primarily in the protection of man-made structures and natural landscapes, nevertheless makes the important observation that Canadian governments have been “generations” behind their European and American counterparts with regards to heritage conservation (Heritage Canada 1974:3).

In Burnham’s compilation of national heritage legislations, the *Historic Sites and Monuments Act* (R.S.C. 1985, c. H-4), and Section 91 of the *Indian Act* (R.S.C. 1985, c. I-5) are listed as relevant Canadian legislation (Burnham 1974:48). Neither act is concerned exclusively with archaeological heritage. The *Historic Sites and Monuments Act* establishes the Historic Sites and Monuments Board of Canada, and provides for the commemoration of historic sites. For the purposes of the Act, historic places are defined as: “a site, building or other place of national historic interest or significance, and includes buildings or structures that are of national interest by reason of age or

architectural design” (s. 2). The *Indian Act* governs the question of title to, and destruction of, Indian grave houses; carved grave poles; totem poles; carved house poles and rocks embellished with paintings or carvings situated on Indian reserves (s. 91). Yellowhorn (1999:115) notes that while the *Indian Act* does not explicitly provide for the protection of heritage sites on reserve lands, it is the only legislative means by which to do so, and thus must be interpreted in such a way that protection of these sites is afforded. Since the publication of Burnham’s review volume, two additional Canadian laws which apply to archaeological heritage have come into force.

The *Cultural Property Export and Import Act* (R.S.C. 1985, c. C-51) addresses the issue of the export of cultural property from Canada and the import of cultural property illegally exported from foreign states. Materials the export of which is prohibited under the Act include “objects of any value that are of archaeological, prehistorical, historical, artistic or scientific interest” (s. 4(2)(a)) and “objects that were made by, or objects...that relate to, the aboriginal peoples of Canada and that have a fair market value in Canada of more than five hundred dollars” (s. 4(2)(b)). The Act also covers a broad range of artistic and archival materials the market value of which exceeds a given amount as outlined in the Act.

The *Canadian Environmental Assessment Act* (S.C. 1992, c. 37) defines “environmental effect” as “any change that [a] project may cause in the environment, including...any structure, site or thing that is of historical, archaeological, paleontological or architectural significance” (s. 2(1)(a)). One purpose of the Act is to “ensure that the environmental effects of projects receive careful consideration before responsible authorities take actions in connection with them” (s. 4(a)). It has been noted that the Act

only protects cultural materials under “certain conditions” (Nadon 2001:63) and that “many are not covered because of exclusions in the [A]ct” (Lee 2002:48). No federal legislation in Canada exists strictly to address questions concerning archaeological heritage. Legislation at the provincial and territorial level does, however, exist.

Each Canadian province and territory has passed legislation governing heritage materials found in and on provincial and territorial lands (Denhez 2000:1; Nadon 2001:63; Pokotylo and Mason 2010:57). Public education, however, is not a requirement of archaeological investigation according to any of these laws (Lea and Smardz 2000:142). In Manitoba, the identification, designation, protection and disposition of heritage sites and objects, both cultural and natural, is governed by the Heritage Resources Act (C.C.S.M. c. H39.1). Heritage sites of cultural significance are defined as those sites which represent “an important feature of the historic or pre-historic development of the province or a specific locality within the province, or of the peoples of the province or locality and their respective cultures” (s. 2(a)). Archaeological materials are addressed specifically in Part IV (s. 43-55). The Crown is identified as owner of any heritage objects found on or after the day the Act was enacted, with few exceptions (s. 44(1)). The Act makes provision that the minister may, through agreements with individuals, institutions or other jurisdictions, make possible the display of heritage objects (s. 48-49,61). A register of provincial heritage objects is to be available for public consultation at the discretion of the minister (s. 55(2)).

The federal legislation which deals with archaeological heritage in Canada does so marginally, and considers neither public education nor access. In Manitoba, provincial legislation addresses archaeological heritage specifically; however, public education is

not a requirement. Professional codes of ethics have an important role to play in the practice of archaeology, particularly when legislation is found to be lacking.

Professional codes of ethics

Professional statements of ethics exist to direct the behaviour of members of a given profession (Hein 2000:91) to an extent that exceeds legal expectations (Malaro 1994:17-18). In Canada and the United States, the principles espoused internationally are retained in spirit; however particular political climates often require additional attention to nation-specific concerns. As a result, the Canadian Archaeological Association (CAA) has approved two documents that guide the work of its members. The *CAA Principles of Ethical Conduct* is structured around four main values: stewardship, Aboriginal relationships, professional responsibilities, and public education and outreach (CAA 2011). A separate *Statement of Principles for Ethical Conduct Pertaining to Aboriginal Peoples* was endorsed by members to guide “their relationships with Aboriginal peoples” (CAA 1997:5). The majority of archaeological material recovered in the Americas represents the heritage of indigenous peoples (Drennan and Mora 2001:4), and those materials recovered in Canada are no exception (CAA 2011; Nicholas 2009:204; Nicholas and Bannister 2004:329). Like the *CAA Principles of Ethical Conduct*, the *Statement of Principles for Ethical Conduct Pertaining to Aboriginal Peoples* is founded on four principles: consultation, Aboriginal involvement, sacred sites and places and communication and interpretation (CAA 1997:6). The first document parallels international texts in accepting that the archaeological record forms a portion of the past that is the “heritage of everyone” (CAA 2011). Both documents recognize the need to communicate the results of archaeological research to the public at large, and specifically

to concerned Aboriginal communities. The ideas expressed in both statements influenced this thesis.

The Society for American Archaeology (SAA) employed two separate statements of ethics prior to their current *Principles of Archaeological Ethics* (Wylie 1999:321), which were adopted in 1996 (SAA 1996:451). The Principles document identifies and elaborates upon eight values to which its members should adhere, including stewardship, public education and outreach, and public reporting and publication. The SAA does not recognize the relationship of indigenous groups to the archaeological record as explicitly as does the CAA, simply guiding members to “consult actively with affected group(s)” and recognizes Native Americans as one of many “ethnic, religious and cultural groups who find in the archaeological record important aspects of their cultural heritage” (SAA 1996:451-452).

The CAA and SAA are but two of numerous professional archaeological organizations in North America that have adopted statements of ethics. *The Code of Conduct* of the Register of Professional Archaeologists (RPA) outlines the responsibilities of archaeologists to multiple interest groups, of which the public is one (RPA n.d.). The Archaeological Institute of America has approved two separate documents – the *AIA Code of Ethics* (AIA 1997a), and the *AIA Code of Professional Standards*, which outlines responsibilities to the archaeological record, the public and colleagues (AIA 1997b). The seventh principle of the *Ethical Principles of The Society for Historical Archaeology* states that members will “encourage education about archaeology” and engage the public through the presentation of research results (Society for Historical Archaeology 2003).

In 1999, the Canadian Museums Association (CMA), while fully supporting ICOM's principles, drafted a document to address contemporary issues and concerns from a Canadian perspective (CMA 1999:2). The *CMA Ethical Guidelines* is divided into 12 sections, which include the public trust role of museums, accessibility and presentations, and culturally sensitive objects and human remains. Museums are required to be good stewards of the collections in their care for the benefit of present and future generations, and to make these collections and associated information equally accessible to all (CMA 1999:5,10). The significance of certain objects to originating communities is recognized, as well as the fact that access to these objects may need to be restricted in accordance with community wishes (CMA 1999:11).

There are more similarities among international and professional standards than among the federal and provincial legislation examined here, particularly with regards to public education and access. Legislation deals with the real-world practicalities of doing archaeology, whereas international (necessarily general and broad in scope) and professional standards can afford to be more idealistic. Both legal and ethical guidelines provide the standards by which archaeological work is practiced, and can be viewed as a concrete motivation for providing public access to research results. There also exist what could be described as intangible incentives for doing so.

Further justification

Financial accountability has been suggested as a rationalization for public presentation and outreach. Prior to the mid-1970's, archaeologists in the US excavated based on personal interest and conveyed results of their work exclusively to colleagues

(Davis 1989:96). This practice has since been deemed inadequate from both an ethical and financial perspective (Merriman 2002:542). Much archaeology is publicly funded. As a result, those in the discipline should consider the needs of a public audience, and provide tangible results such as public interpretation, if this funding is expected to continue (McManamon 1994:63; Merriman 2002:542). Financial accountability is a practical reason for the communication of research results, but there are others which are slightly speculative. It has been suggested that the preservation of, and public support for, cultural heritage are intimately linked (Seeden 1984:95). Some posit that an archaeologically educated public is more likely to see the protection of archaeological resources as important and take action to ensure this protection (McManamon 1991a:267; 1994:62-3; Pokotylo 2002:98). Finally, knowledge of the past could lead to a concern with humanity's shared heritage, apart from one's national and ethnic identity, and an increased appreciation for geographical and temporal others (Mayer-Oakes 1989:57). These rationalizations are merely hypothetical, and the presence of a cause-and-effect relationship would be difficult to measure. If, however, public education and access initiatives are being embarked upon simply based on the concrete rationale of legal and ethical documents, the occurrence of any of the more speculative benefits is simply a bonus. The following section presents a discussion of what is known about the public, their attitudes towards archaeology and their desire for information.

3.3 Who are they and what do they want?

3.3.1 Audiences for archaeological information

The public to whom professionals are obliged, and from whom support is desired, is not a homogeneous entity. The audiences for archaeological information are many and varied. McManamon (1991b) identifies five separate interest groups in the United States alone: the general public; students and teachers; the congress and executive branch; government attorneys, managers and archaeologists; and Native Americans. Swain (2007:198) distinguishes nine discrete audiences for museum archaeology: nonmuseum visitors; casual museum visitors; active museum visitors; school children; members of local societies and evening class students; undergraduates; postgraduates; professional archaeologists; and academic researchers. Hills and Richards (2004:304) identify only three audiences for archaeological information in the United Kingdom: “academic archaeologists, field archaeologists and the wider public”, but recognize that each can be further subdivided, and that many people belong to multiple categories. Variations on these schemes can be applied to a Canadian audience, with the US arrangement most closely resembling the situation in Canada. All of the categories presented above, however, are important to keep in mind in the context of Internet-based public access. Internet audiences are not solely local or national, but are worldwide in scope.

The public is often included in these categorical schemes, explicitly or implicitly. Pearce defines “the general public” as those individuals who consider themselves neither curator nor archaeologist (Pearce 1990:133). She further divides this broad group into: those adults with no interest in the past, those adults who make a conscious effort to

inform themselves about the past, and children whose ideas about the past have not yet been formed (Pearce 1990:133). Cannon and Cannon's (1996:29-30) "consuming public" equates roughly with Pearce's second category, and they suggest that a better understanding of this category of visitor will better help professionals to reach out to the general public. Swain (2007:199) acknowledges that there is a certain segment of the population for whom the past will never be interesting, and that this is their prerogative. Nevertheless, it is the responsibility of the archaeological community to make information about the past accessible, regardless of whether some will choose to access it (Merriman 1991:1). In so doing, it is important that archaeologists learn about their audience(s) and communicate specific messages in an appropriate manner (McManamon 1994:64). The following section presents the results of public surveys about archaeology that have been conducted in Canada and the United States.

3.3.2 Results of public surveys

Many archaeologists would agree that the public is very interested in their work (Pokotylo and Mason 1991:9; Fagan 1984:175; McManamon 1994:63; Smith 1993:2); however, limited research into confirming this interest, or what form it might take, has been conducted (Cannon and Cannon 1996:29; McManamon 2000:11; Pokotylo 2002:89; Pokotylo and Mason 1991:9). A number of studies do exist that attempt to gauge the public's knowledge of, and interest in, archaeology (Feder 1984, 1995; Pokotylo 2002; Pokotylo and Guppy 1999; Pokotylo and Mason 1991; Ramos and Duganne 2000; Turnbaugh 1994), and visitor responses to archaeology as presented in museums (Cannon and Cannon 1996; Merriman 1989). Results of these surveys demonstrate that the public *is* interested in archaeology (Feder 1984:536; Pokotylo and Guppy 1999:415; Pokotylo

and Mason 1991:16; Ramos and Duganne 2000:20; Stone 1986:17); however, they may not have an accurate conception of what archaeology encompasses as a discipline. Furthermore, the attempts of the archaeological community to educate the public may not mesh with the sources through which the public would prefer to learn about archaeology.

The surveys reveal that levels of understanding, and current and preferred sources of archaeological information, are variable. Results of questionnaires distributed in Vancouver, British Columbia in 1985 and 1989 point to a high level of interest in archaeology, in conjunction with significant confusion as to the scope of the discipline (Pokotylo and Mason 1991:11). While 94% of respondents correctly identified “study the remains of past cultures” as the scope of archaeology, over half (56.6%) identified “study fossils, such as dinosaurs” (Pokotylo and Mason 1991:11-12). Fifty two percent selected both responses, suggesting uncertainty about the scope of archaeology. Television, magazines and books were the three most-cited sources from which respondents had learned about archaeology, while television, site visits and museums were identified as the top three sources from which respondents would *prefer* to learn about archaeology (Pokotylo and Mason 1991:12-14).

Respondents to a 1996 questionnaire in southwestern mainland British Columbia combined for an 82% rate of what the authors considered “accurate” (66.4%) or “reasonable” (15.3%) ideas about the scope of archaeology (Pokotylo and Guppy 1999:402). Over 15%, however, subscribed to the “earth science” perspective, which equates or ties archaeology to palaeontology (Pokotylo and Guppy 1999:402). When asked to gauge the accessibility of research results on a scale from “not accessible” to “very accessible”, responses leaned slightly toward accessibility (Pokotylo and Guppy

1999:404-405). Museums and television were identified as “most informative” sources of archaeological information, while preferred information sources were primarily television, travel and museums (Pokotylo and Guppy 1999:405). One quarter of all write-in responses identified the Internet as a preferred information source (Pokotylo and Guppy 1999:405).

In 2000, a national survey of Canadian attitudes towards, and knowledge of, archaeology and related issues was conducted. The earth science perspective was the response provided most frequently (40.4%) when respondents were asked what came to mind when they heard “archaeology” (Pokotylo 2002:92-93). “Digs” (38.8%) and ancient past/ancient civilizations (23.5%) were the next most frequent responses (Pokotylo 2002:92-93). Respondents were asked to rank the effectiveness of five sources of archaeological information. Site visits, followed by college or university classes were recognized as the most effective ways of learning about archaeology (Pokotylo 2002:100-101). Television and movies were tied with books and magazines in third place, and respondents placed the Internet in last place as the least effective method of learning about archaeology (Pokotylo 2002:100-101). Despite a low demonstrated preference for the Internet exhibited by the two British Columbia surveys, these values were expected to increase in the future (Pokotylo 2002:125-126; Pokotylo and Guppy 1999:415).

A national survey of American attitudes towards archaeology was commissioned by a group of archaeological organizations in 1999 (Ramos and Duganne 2000:3). Results show that the American public has a “fairly broad and moderately accurate” idea of what archaeology is and what archaeologists do (Ramos and Duganne 2000:11-12). The top two responses were “Digging” (22%) and “History, heritage, and antiquity”

(12%) (Ramos and Duganne 2000:11). Only 10% of respondents indicated dinosaurs/dinosaur bones when asked what they think of when they hear “archaeology” (Ramos and Duganne 2000:11). Television, followed by magazines and newspapers were identified as media through which people have learned, and would prefer to learn, about archaeology (Ramos and Duganne 2000:16,18,31). The Internet is not mentioned in this report as a preferred source of archaeological information.

Undergraduate students surveyed at Central Connecticut State University in 1984 and 1994 demonstrated a willingness to accept pseudoscientific claims about the past (Feder 1984, 1994), which should lead archaeologists to question the effectiveness of current education and outreach strategies (Pokotylo and Mason 1991:12). If outreach efforts are not evaluated, archaeologists are left communicating to the public without the proper insight (Merriman 2002:547-548). The above surveys shed light upon what information the public wants. For example, 67% of British Columbia respondents want more information about prehistoric archaeology made available to them (Pokotylo and Mason 1991:13). The US survey reveals that 45% of respondents are particularly interested in how people lived in the past (Ramos and Duganne 2000:20; see also Hills and Richards 2004:304). Similarly, “reconstructions/illustrations of past lifeways/environments” was the most frequently cited suggestion for improvement from a visitor survey conducted at the Ontario Prehistory gallery of the Royal Ontario Museum (Cannon and Cannon 1996:36).

These studies suggest that the Internet was not a preferred source of archaeological information prior to 2000; however, some authors expected this to change. In recent years, people have come to rely increasingly on the Internet as an information

source. The above studies were conducted by members of the archaeological community, but museums have been identified as the most important venue for archaeological education. Thus, it is worthwhile to discuss what the museum community has learned about its audiences.

The Canadian museum community conducted a survey in 1973 designed to increase knowledge of the Canadian public's attitudes towards museums, the lack of which was hampering implementation of the National Museum Policy (Dixon et al. 1974:3). The survey was designed in such a way as to include all geographic and demographic groupings; however Canadians in "remote areas", including the Territories and Indian reserves, were unfortunately excluded (Dixon et al. 1974:3-4). Fifty four percent of respondents indicated that the distance museums are located from their home influenced their decision to not visit (Dixon et al. 1974:129). Museum buildings were identified as being "physically uncomfortable" in some way by 34% of respondents (Dixon et al. 1974:129). While respondents did not necessarily want to physically handle artefacts or specimens (47% indicated that this would not change their experience), 61% suggested that their visit would be enhanced by more exhibits in which they could actively participate (Dixon et al. 1974:130). Respondents were asked about improvements to museums that would increase their likelihood of visiting. Sixty-one percent identified free admission (30% ranked this as the *most important* improvement museums could make), and 46% wanted to see museum exhibits in their neighbourhood (Dixon et al. 1974:221,223). The findings of this study indicate that more than two decades ago, the Canadian public was ready for the kinds of cultural heritage experiences that the Internet can provide today. The ability to view an exhibit from home negates the

problems of distance and discomfort, and the user choice afforded by the Internet results in a more interactive and participatory experience.

A national survey was conducted in 2007 as part of *The Canadians and Their Pasts* project, which “explore[s] the myriad of ways that Canadians think about the past as well as what sources they trust and use to give meaning and shape to their historical experience” (Dubinsky and Muise 2008:33). Preliminary results revealed that over 20% of respondents used the Internet to engage with the past, and approximately two-thirds of these individuals had done so more than five times in the preceding twelve months (Dubinsky and Muise 2008:33; Conrad et al. 2009:29). Although using the Internet as a source of information about the past was identified by more respondents than reading multiple books about the past, or making multiple visits to a museum or historic site, only 8% regarded it as a trustworthy source of information, and respondents ranked all of the other suggested sources of information as more reliable (Conrad et al. 2009:31). While this survey is not about archaeology specifically (investigators defined the past as “everything from the very recent past to the distant past, from your personal history to the history of Canada and other countries” (Conrad et al. 2009:26)) it is about the ways in which Canadians find out about the/their past(s). The Internet as a source of information figures more prominently in this survey than in any of the archaeology surveys discussed above. This could be a consequence of increased Internet use over the past decade, or suggest that historians exploit the Internet for public outreach more effectively than archaeologists.

Summary

Public surveys by archaeologists and museum professionals have shown that, while people may not have exactly the right idea about the scope of archaeology, it is something in which they are at least moderately interested. They do not want to go far to access heritage information, and a comfortable, interactive experience which provides context is important. See section 7.1 to compare survey results obtained in this study with those above. Recently, Canadians have identified the Internet as a source for information about the past. The Internet affords the opportunity to meet the needs and wants of a public audience in their quest for heritage information. The following chapter discusses the advantages and disadvantages of Web-based presentations of archaeological information specifically, and provides examples of some Internet-based archaeological resources.

4.0 Archaeology and the Internet

Less than two decades ago, it was argued that archaeologists were not using the Internet to full advantage for the dissemination of research results (Booth 1995, cited in Aldenderfer 2002:101). Since that time, however, the discipline has increasingly come to embrace the opportunities afforded by a digital world for professional collaboration and communication and interaction with non-expert audiences (see, for example, *SAA Archaeological Record* 11(1), *Internet Archaeology*, Evans and Daly 2006). This chapter presents a discussion of the advantages and disadvantages of Web dissemination and includes a review of some Web-based initiatives to share archaeology with a public audience, including how universities in Canada are (and are not) sharing their collections online.

4.1 Archaeology and Web dissemination - Advantages

Due to the multitude of benefits of online presentations, it is not surprising that the dissemination of archaeological information has been so profoundly affected by the digital revolution (Hills and Richards 2004:310; Richards 2006:213). The Web has been touted as a tool that enables archaeologists to reach a worldwide audience relatively inexpensively (Beaudoin 1997:11; Hoopes 1997:104; Lock 2003:11; McManamon 1998:13; Richards 2008:174; Zubrow 2006:12) (see section 7.3 for the extent of geographical reach obtained by UM Archaeology). If one accepts the position that the archaeological record represents the common heritage of all humanity, it follows that *all* of humanity should have access to *all* of the archaeological information generated from research around the world. Two examples illustrate this point: foreign tourists were the

most frequent visitors to the Ontario Prehistory gallery at the Royal Ontario Museum in Toronto, Canada (Cannon and Cannon 1996:43), and one class of respondents in a British survey ranked world history as more important than local history (Merriman 1989:166). These two studies suggest that local history can be of interest to those from other regions, indicating that it is necessary to reach both local and global audiences when conducting outreach and education projects.

Disparate audiences desire and require varied amounts and types of information about the archaeological record. A trend in museums has seen visitors provided with increased amounts and types of information, including illustrations, models, dioramas, mannequins and interpreters to help create a more complete understanding of the past than could be achieved with “fragmentary archaeological material” (Merriman 2002:553). Compared to traditional, colourful and costly publications produced for non-specialists (Zimmerman and Mathur 1998:84), Web-based presentations are ideally suited to the presentation of a wide range of data types, and can include colour photos and other images, sound files, 3-D models, video clips, searchable databases and more, in addition to the words associated with traditional text-based publications (Childs 2002:229; Hills and Richards 2004:310). Visiting these presentations involves user choice. The user actively decides what type and how much of the information presented they want to view, and where to go next (which can include lateral jumps), as opposed to the linear progression typical of books and television shows (Childs 2002:229). The nature of the Web lets users choose their own adventure, creating an interactive experience (see section 7.3 for a discussion of how users moved around UM Archaeology, and the pages in which they were most interested). The ability, however, to present massive amounts of

information does not mean that everything that *can* be presented *should* be presented; what is provided should be carefully considered and based on the target audience (Lock 2003:266). An abundance of information can easily become overwhelming, making it difficult for interested parties to find that which they are seeking (Hills and Richards 2004:310). This process of editing, however, could be considered antithetical to a philosophy of increased access, and one could question why the archaeologist gets to determine what information is available, and what information is hidden. Section 6.1.1 describes what information was omitted from UM Archaeology and why.

Part of the interactive experience of the Internet today is that it has become increasingly participatory: users have become content contributors, in addition to content consumers (O'Reilly 2005; Witte and Mannon 2010:13). The idea of a single, objective interpretation of the past has fallen out of favour with archaeologists and museum professionals who interpret the past, and many are today recognizing the benefit of considering multiple interpretations and perspectives (Simpson 2001:60; Trigger 2008:190). The open nature of the Web “encourage[es] multi-vocality and pluralism”, giving the public the chance to participate in a more “inclusive” archaeology (Daly and Evans 2006:8). Two decades ago the benefits of engaging with, as opposed to talking at, the public were recognized (Potter 1990:610), and the Internet can be a forum for this discourse (Lock 2003:267).

In addition, there are advantages that benefit both the public and the research community. Reports can be posted on the Web that may have only been printed in small quantities or not published at all (Childs 2002:232). Websites can be quickly updated and changed as new information becomes available, reducing the time it takes for the

archaeological community to communicate new findings among themselves and to their audience(s) (Childs 2002:230). See section 6.4 for a discussion of how this capacity helped UM Archaeology. Archaeology is practiced worldwide, and as a result, archaeological collections are themselves scattered across the globe. In addition to this physical dispersion, collections (including archival documents, reports and data sets) may be neither catalogued nor accessible (Snow et al. 2006a:15; Snow et al. 2006b:958). Finding all of the data relevant to a particular research question is a time-consuming aspect of research, and the dispersed nature of archaeological information can be an impediment to complete and accurate research (Wise and Miller 1997). A basic knowledge of the collections housed at a given institution can facilitate the planning and implementation of collection-based research (Hoopes 1997:104). Online dissemination can also serve as a conservation strategy for collections, resulting in decreased handling of objects and records (Sullivan and Childs 2003:107).

Due to the advantages of online presentation and communication, research communities have been moving toward an open access ideal. “Open Access [content] is digital, online, free of charge, and free of most copyright and licensing restrictions” (Suber 2010). Although much literature surrounding scholarship and open access concerns access to literature, the concept is applicable to all digital content (whether born digital or digitized later in ‘life’), including raw data, images, audio and video files, and even cultural heritage objects (Suber 2010). While many herald open access as a way to provide equivalent access to the latest research to scholars around the world, regardless of the economic situation in their country or institution, others maintain that this access should extend to the public as well, particularly when referring to the results of publicly

funded research (Suber 2010; Willinsky 2006:9). In the past decade, the international community has begun to codify its support of the open access paradigm. For example, the Budapest Open Access Initiative stresses free and unrestricted access to peer-reviewed scientific literature for scholars and the general public (“other curious minds”) (Budapest Open Access Initiative 2002). The Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003) is particularly relevant to this discussion, as it calls upon the authors of scientific research *and* the stewards of cultural heritage to publish according to the values of the open access paradigm, and to provide Web-based access to their holdings (Max Planck Society for the Advancement of Science 2003). Finally, the Cape Town Open Education Declaration concentrates primarily on widespread access to educational tools like lesson plans, textbooks and course materials. In the context of the Cape Town Declaration, UM Archaeology could be considered a “[material] that support[s] teaching and learning” (Cape Town Open Education Declaration 2007). Open access initiatives in archaeology (presented in section 4.3.2) focus primarily on providing access to data for researchers, but most recognize that content freely available on the Internet may also be viewed by the public. In contrast to the advantages just discussed, there remain disadvantages to Web-based dissemination of archaeological information.

4.2 Archaeology and Web dissemination – Disadvantages

The development of the Internet has most acutely impacted developed nations (Hodder 2002:86), and during early stages of its growth there were concerns about its use isolating those without online access (Huggett 1993:8). Some argue that the expansion and current ubiquity of the Internet have rendered these concerns irrelevant (Richards 2006:217). Yet, questions remain regarding equality of Internet access. In addition, as

rates of Internet penetration increase, there is concern that those who have recently gained access may not have the requisite skills to benefit from this resource (Witte and Mannon 2010:2). Statistics indicate that digital divides, defined as “inequality in access to information and communication technology resources” still exist between countries, within countries and even within some large cities (Howard et al. 2010:111,120; Norris 2001:10). Although Internet use worldwide has doubled between 2005 and 2010, significant gaps in usage remain when one compares, for example, Europe and the Americas with Africa (International Telecommunications Union 2011). In Canada, digital divides exist between indigenous and non-indigenous Canadians, between urban and rural populations, between low- and high-income earners, between young and old Canadians, and between English and French speakers (Howard et al. 2010:112). Thus, while the Internet does provide an opportunity for archaeological information to be shared around the world, there are still parts of the world (and our own country) with limited access to this resource. Furthermore, if indigenous Canadians, for example, have one of the lowest information and communication technology penetration rates, and are one of the groups to whom archaeology may be most relevant, the Internet may not, at present, be the best avenue through which to carry out public education and outreach (cf. McDavid 2004:164). Canadian federal, provincial and municipal governments, however, have attempted to lessen these divides by contributing to initiatives that provide Internet access in public spaces like schools and community centres (Howard et al. 2010:111). Consequently, online presentations may not currently succeed at reaching all sectors of the Canadian population; however, as Internet access in this country continues to increase, the potential audience for online archaeological information will also increase.

One of the above-stated advantages of the Web, that its open nature contributes to interactive discourse, can also be viewed as a disadvantage. A very real potential exists for individuals to post archaeological information of dubious credibility (Pokotylo 2002:126). Thus, the general public must critically evaluate the information they do come across (Hills and Richards 2004: 310); this is true for all information on the Web, not solely archaeological information. The willingness of American university students to believe pseudoscientific claims about archaeology (Feder 1984, 1994) underscores the need for credible archaeological information amongst the extraneous noise available via the Internet, and it underlines the importance of the archaeological community acting as a primary producer of Web-based archaeological content (McDavid 2004:178; Merriman 2002:557; Pokotylo 2002:126; Pokotylo and Guppy 1999:415).

The broad public dissemination (online or otherwise) of archaeological information raises concerns about site security and integrity. Most archaeologists would be uncomfortable with the idea of providing detailed site location information in a publicly accessible forum, and, as a result, access to provenience data may be restricted (Hoopes 1997:101; Zimmerman and Mathur 1998:84; Zubrow 2006:13) (see section 6.1.1 for a description of how this was handled in UM Archaeology). There is no empirical evidence to suggest that increased public awareness and knowledge necessarily results in increased protection of, and concern for, the archaeological record (Stone 1997:24). In addition, it has been suggested that publicizing the work of archaeologists can increase the chances of site destruction due to ‘treasure hunters’ (Seeden 1994:97). Others, however, see the potential advantages outweighing the potential risks (McManamon 1994:76), which is the perspective I chose to adopt with this project.

Recognizing that access to the Internet is not a universal phenomenon, and making an effort to alleviate the concerns with wide-ranging public access, I felt that the Internet could still provide the most far-reaching access achieved to date for the collections used in this thesis. The following section provides an overview of a number of examples of online archaeological collections access based in Canada and elsewhere.

4.3 Archaeology on the Internet

In 2001, an Internet search using search engines Yahoo, Google and Altavista indicated that there were between 1 and 2 million Websites “that either deal[t] with or [were] about archaeology” (McDavid 2004:159). Searches performed in 2011 for the simple term “archaeology” using Yahoo! Canada, Google.ca and Altavista (searching for worldwide results) generated between 12, 100, 000 and 26, 500, 000 results. Thus, in the past 10 years, the amount of archaeological content available on the Web has increased a great deal. The following chapters present initiatives in Canada, and elsewhere, through which archaeological information is being presented online to a public audience.

4.3.1 Online access to archaeological resources in Canada

Archaeological collections are curated by government repositories, historical societies, museums, community-run cultural centres, universities and archives (Sullivan and Childs 2003:46-50). The following discussion begins with examples of online access to archaeological resources that span the country, and then narrows its focus to individual museums and universities in Canada. Sullivan and Childs (2003:46-47) identify a stated commitment to public education as the major difference between museums and academic repositories. A review of Canadian museum and university Websites suggests that this

disparity in mandates results in a clear divergence in whether archaeological collections are publicly accessible via the Internet.

Canadian Heritage Information Network

The Canadian Heritage Information Network (CHIN) is a national body that serves as a professional resource for digital heritage services, and helps national and international audiences access and interact with the Canadian heritage housed in museums and other repositories across the country through new and emerging technologies (CHIN 2009a). The CHIN Website is divided into two main areas: Professional Exchange, and Virtual Museum of Canada. The Professional Exchange section contains Artefacts Canada, promoted as a reference tool for museum professionals, as well as reference and educational materials. Artefacts Canada (<http://www.pro.rcip-chin.gc.ca/artefact/index-eng.jsp>) is a national inventory of cultural and natural heritage objects. Through Artefacts Canada, users can search two databases: Artefacts Canada, which includes archaeological material, social history and fine art collections, and more, or Artefacts Canada – Natural Sciences, where natural history collections are presented (CHIN 2009b). Institutions throughout Canada are invited to upload records to Artefacts Canada in order to share their collections with a national and international audience (CHIN 2009c). CHIN, however, only requires limited and specific information from participating institutions: the object name and unique identifying number for the artefact in question, and the identity of the contributing institution (Madeleine Lafaille, personal communication 2008). Beyond this required information, the contributing institution has the option to upload additional information (Madeleine Lafaille, personal communication 2008). This policy results in records of highly variable

detail. A third database called Archaeological Sites was maintained from 1997-2004 as part of Artefacts Canada; however this service was discontinued on the advice of contributors who felt that “a national database of sites had limited usefulness to provincial managers and to consultants” (Claire Forman, personal communication 2005). “Provincial managers” are defined as the provincial body responsible for assigning Borden numbers and issuing site permits (Claire Forman, personal communication 2006). A critique of the site indicated that the search page was not easy to use, and that raw data was provided with no interpretation, making the site of limited use to general users (Beaudoin 1997:14-15). In addition, this database contained “very basic information” (Claire Forman, personal communication 2005) about the sites, which, in combination with its narrow target audience, may explain its perceived limited worth and consequent demise.

Virtual Museum of Canada (VMC) (<http://www.museevirtuel-virtualmuseum.ca/index-eng.jsp>) is a home for museums to present online content to their audiences (CHIN 2009d). VMC includes virtual exhibits, specific resources for teachers, an Image Gallery, and a link allowing users to find detailed information to help plan visits to museums in Canada. The Image Gallery is a public-oriented space for Artefacts Canada records which contain images (CHIN 2009b).

Canadian Archaeological Radiocarbon Database

The Canadian Archaeological Radiocarbon Database (CARD) (<http://canadianarchaeology.ca/>) compiles published, unpublished and unreported radiocarbon dates from archaeological and palaeontological sites across North America

and Russia. While it does not present archaeological collections, it is the closest thing to a national database of strictly archaeological resources in Canada, and thus is included in this discussion. The database was developed in response to the underutilization of radiocarbon dates for developing chronologies (Canadian Museum of Civilization 2005). A target audience of archaeologists can be inferred from some aspects of the data presentation. The data being compiled, radiocarbon dates, are presented in a way that is likely only meaningful to someone who is already familiar with radiocarbon dates. The Website does, however, include pages titled “fundamentals of C-14 dating” and “technical aspects of C-14 dating” as primers for the uninitiated. In addition, there is a “References” field which includes name and date references from which the radiocarbon dates were taken, and to which an interested party could go for more information about a particular date. A “Look up a reference” link on the homepage allows interested users to input name and date references taken from records, and be provided with complete bibliographic references. CARD is available to anyone with Internet access, and as a result the presence of a “Location” field which explains the precise location of any given site could be considered a risk to site security. Some characteristics of CARD are likely to render it dull to members of the public, save for the most interested individual. Due to the nature of the data (dates, not artefacts), there are no photos and no indication of context in the sense of what other materials were found at the site, with the exception of the “Associated taxa” field. Additionally, no maps are available at the time of writing, so unless the user is familiar with Borden numbers or the local geography of a specific area, they are unlikely to have an immediate conception of where a site is located. The

references field is a great idea, which was taken from CARD and employed in UM Archaeology.

Parks Canada

Parks Canada Agency is the federal government instrument responsible for archaeology on federal lands and federal lands underwater (Parks Canada 2005:2). Parks Canada administers the National Historic Sites of Canada, of which archaeological sites and collections are often an important constituent, and other heritage areas (e.g. National Parks of Canada) where archaeological materials are also prevalent (Parks Canada 2005: 1,3). Parks Canada's Internet presence focuses on the presentation of cultural and natural heritage areas, including visitor information, the cultural and/or natural significance of an area, and maps to locate sites. The Parks Canada Website (<http://www.pc.gc.ca/>) presents limited results of archaeological research to the public; however due to the vast range of sites and areas that they manage, presenting information at a broader resolution (e.g. at the National Historic Site or National Park level), as opposed to specific results of archaeological research, is understandable. The Website does include a section entitled "Archaeology at Parks Canada" which provides an introduction to the discipline and profession, educational games and learning activities. The 3-dimensional tour section highlights four sites. Interested parties can view virtual tours of the sites, photos (if available), links to additional information about related topics, and photos of artefacts from the site, with basic identification information (Usage, Period, Cultural Affiliation, Description). These presentations provide users with the geographic context of a site, additional information, and place artefacts together in context. The further information to which users are directed is comprised of additional Websites, and the artefacts presented

are only the pretty ones, presenting a skewed impression of what archaeologists find. Finally, because it is not the primary purpose of the Parks Canada Website, it is not immediately obvious where to look for information about archaeological research and one could get lost amongst the information on the home page.

Canadian Museums

A review of 14 large Canadian museums was conducted in the context of online collections access (Table 4-1). All but one of the museums studied provides online collections access through Artefacts Canada. Only one, however, contained a link to Artefacts Canada on their institutional Website. Almost half of the museum Websites studied provided collections database access directly through the institution's Website. When collections access is provided, collections are frequently easily found through a tab on the homepage with a title like 'Research and Collections'. Sometimes, however, in these Internet-based presentations of the collections, archaeological materials are so integrated with other collections (e.g. 'Canadian history') that it is difficult to distinguish which materials were recovered archaeologically.

Table 4-1. Summary of online access to archaeological collections access provided by Canadian museums.

Museum	Archaeological collections	Collections access via museum's Website	Collections access via Artefacts Canada	Link to Artefacts Canada
Canadian Museum of Civilization	X	X	X	
MacBride Museum	X	X	X	
The Manitoba Museum	X	X	X	
Musée de la Civilisation	X		X	
New Brunswick Museum	X	X	X	

Nova Scotia Museums	X		X	
Pointe-à-Callière, Montréal Museum of Archaeology and History	X		X	X
Prince Edward Island Museum and Heritage Foundation	X		X	
Prince of Wales Northern Heritage Centre	X		X	
The Rooms Provincial Museum	X		X	
Royal Alberta Museum	X		X	
Royal British Columbia Museum	X	X	X	
Royal Ontario Museum	X	X	X	
Royal Saskatchewan Museum	X			

Canadian Universities

A similar review of Websites was conducted for 33 universities in Canada that offer courses in archaeology. Of the 33 institutions examined, two do not house archaeological collections, and one did not respond to repeated inquiries about the presence of pertinent collections. Thus, for the purposes of this discussion, 30 universities in Canada house archaeological collections, five of these departments have associated museums, and three house display cases but do not have institutionalized museums (Table 4-2). I am identifying an “associated museum” as one which is explicitly stated as an affiliate, or one which has a tab or link directly from the department’s homepage. Thus, the McCord Museum, for example, is not included as an affiliate of McGill University’s Department of Anthropology, but the University of British Columbia Museum of Anthropology *is* included as an associated museum of that institution’s Department of Anthropology. In one case, I determined the presence of an affiliated

museum strictly by accident when investigating Artefacts Canada. Additionally, when I refer to collections access, I am speaking specifically about archaeological collections. Thus, if an institution houses both archaeological and ethnographic collections, for example, and only the ethnographic collections are available online via a collections database, I indicate in this review that the institution in question does not provide collections access.

None of the institutions provide archaeological collections access (in, for example, the form of a Web-accessible database) directly through the department's Website, although 11 do provide summaries of the materials in their care. These summaries range from detailed reviews of the collection's contents, to basic statements indicating that collections resulting from archaeological excavation are housed in the department. It was necessary to directly contact a number of departments to determine the presence or absence of archaeological collections in their care when I was unable to find mention of collections on their Websites. In two cases, collections information *was* in fact presented on the Website; however, it was posted in places where I would not have thought to look for it. In one case, a collection summary was found by clicking on an individual faculty member's profile. In a separate case, information about the collections was placed on an "Undergraduate Program" page, where I did not consider searching for it, particularly when other more likely options ("About Anthropology at *University Name*", "Research", "Resources and Services for Students") existed.

Two institutions have shared collections through Artefacts Canada; however the university or the affiliated museum are listed as the contributing institution, not the department. These numbers demonstrate that there is room for improvement among

Canadian universities regarding the simple acknowledgement that archaeological collections exist in a given department and online public access to these collections.

The following section presents examples of Internet-based solutions, based outside of Canada, for sharing results of archaeological research.

Table 4-2. Summary of online access to archaeological collections provided by Canadian university departments which offer archaeology courses.

University	Department	Archaeological collections	Associated museum	Access via Department Website	Summary of collections	Access via Artefacts Canada	Link To Artefacts Canada
University of Alberta	Anthropology	Y	X		X	X	
Brandon University	Anthropology	Y					
University of British Columbia	Anthropology	Y	X				
University of Calgary	Archaeology	Y					
Capilano University	Anthropology	Y					
Grant MacEwan University	Anthropology	Y			X!		
Lakehead University	Anthropology	Y					
Laurentian University	Anthropology	Y					
Université Laval	Histoire	Y			X		
University of Lethbridge	Geography	Y					
University of Manitoba	Anthropology	Y	*				
McGill University	Anthropology	Y					
McMaster University	Anthropology	Y	*		X		
Memorial University	Archaeology	Y	*		X		
Université de Montréal	Anthropologie	Y			X		
Mount Allison University	Anthropology	N					
University of New Brunswick	Anthropology	Y			X~		
University of Northern BC	Anthropology	Y					
University of Prince Edward Island	Sociology and Anthropology	^^					
University of Saskatchewan	Archaeology and Anthropology	Y					

St. Francis Xavier University	Anthropology	N				
St. Mary's University	Anthropology	Y				
St. Thomas University	Anthropology	N				
Simon Fraser University	Archaeology	Y	X		X^	
University of Toronto	Anthropology	Y			X**	
Trent University	Anthropology	Y				
Vancouver Island University	Anthropology	Y				
University of Victoria	Anthropology	Y			X	
University of Waterloo	Anthropology	Y			X	
University of Western Ontario	Anthropology	Y	X		X	
Wilfred Laurier University	Archaeology and Classical Studies	Y				
	Sociology, Anthropology and					
University of Windsor	Criminology	Y				
University of Winnipeg	Anthropology	Y	X		X^	X

* Display cases/exhibition space exists.

^ via museum's Website.

~ under individual faculty member.

** Summary contained within Collections Policy.

^^ Department did not respond to repeated requests for information.

! Under department link on Faculty page, not anthropology home page.

4.3.2 Online access to archaeological resources in other jurisdictions

Discussions among North American archaeologists surrounding data access and curation have been ongoing since the 1990's (McManamon and Kintigh 2010:37); however in the past decade, the same group has become increasingly hopeful at the potential of the Internet as a possible solution to this problem (Kintigh 2006; Snow et al. 2006a; 2006b). The following examples illustrate online access to generalized archaeological records, information of subdisciplinary interest, and project-specific records.

Digital Antiquity (based in the United States) and the Archaeology Data Service (based in England) share a common goal of both preserving and providing access to digital data and records generated by archaeological research. Digital Antiquity is a non-profit organization whose goals are to provide for the preservation of digital archaeological data, and to increase the accessibility of these data, which it achieves via the Digital Archaeological Record (tDAR) (<http://www.tdar.org/>), an international, online repository for archaeological data (Digital Antiquity 2011a; McManamon and Kintigh 2010:37). Although a commitment to public access appears on every page of tDAR's Website: "tDAR is committed to ensuring public access to materials in the present, and ensuring they're available in the future", other sources emphasize the benefits to the research community (Digital Antiquity 2011b; McManamon and Kintigh 2010). tDAR offers access to a variety of data, including images, reports, and spreadsheets, from contemporary investigations as well as legacy data from past projects (Digital Antiquity 2011b; McManamon and Kintigh 2010:38). Casual browsers can search the repository and access abstracts of reports and summaries of data sets; however, only users who have

registered for a free account can download the resources provided.

The Archaeology Data Service (ADS), based at the University of York, aims to “collect, describe, catalogue, preserve and provide user support for the digital resources that are created as a product of archaeological research” (ADS n.d.a). This resource developed in response to the fact that much archaeological data is unpublished and remains difficult to access (ADS n.d.a). The identified users of this site are archaeological researchers and teachers, but the data are available online for general public viewing (ADS n.d.a). Users can perform searches based on combinations of keyword, subject, time period and/or a variety of geographical designations, or can browse based on combinations of record type, time period, country and resource type. Users are not required to create an account in order to access the data; however those with accounts can benefit from enhanced research services (ADS n.d.b). The Transatlantic Archaeology Gateway (<http://www.archaeologydataservice.ac.uk/TAG/>) is hosted by ADS but allows users to search the digital resources of both tDAR and ADS, demonstrating that the participants are not working in isolation, but are willing to take advantage of the work of others to provide the greatest benefit to users.

The above examples require users to register an account to access all of the data and to take full advantage of the services offered. The Alexandria Archive Institute (AAI), also a non-profit organization, is dedicated to providing open access, Web-based content related to cultural heritage, including archaeology (AAI n.d.). Open Context and BoneCommons are two of the AAI’s projects. Open Context (<http://opencontext.org/>) is a Web-based home for the publication of data and documentation arising from archaeology and other field sciences (Kansa 2010:12; Open Context n.d.a). This project is an example

of open access in archaeology: users are not required to log in to browse, search or download the available data; however, those users who *do* register for accounts have access to enhanced research features (Kansa 2010:13; Open Context n.d.b). Although facilitating the discovery and reuse of existing data sets for “scholars and students” is a stated goal of the initiative, the choice to provide open access to the data means that “all members of the public are welcome to use and reuse [the] content” (Open Context n.d.c; n.d.d). Users can browse the materials on the site by any combination of geographic region, project name, record category (e.g. artefact category, excavation unit), and/or date range, and are provided with variable content, including artefact records, data spreadsheets, images, reports and excavation drawings.

The above examples facilitate the publication and sharing of general archaeological data; however other resources exist for specific specialties within the discipline. The AAI developed BoneCommons (<http://alexandriaarchive.org/bonecommons/>) in 2006 as a virtual community for zooarchaeologists to communicate and share “images, conference presentations and papers” (Whitcher Kansa and Kansa 2011:26). Users can access publications, conference paper abstracts, job postings and images, and participate in discussion forums. The Datasets tab allows users to access relevant (i.e. faunal) datasets maintained by Open Context. The project’s stated goals identify its target audiences. While the site does provide an online space for zooarchaeologists to communicate and share content, all of the content on the site is freely available to the public, which the developers hope will foster increased engagement between professionals in the field and a public audience (BoneCommons n.d.).

Websites also exist for single archaeological projects. Probably the best known example is the site developed for excavations at Çatalhöyük, Turkey (<http://www.catalhoyuk.com>), which does not specify a target audience beyond “those interested in the ongoing excavations at Çatalhöyük”. Similar to the sites described above, users can access excavation records and artefact records, images, videos, illustrations, a list of team members from specific excavation seasons, a bibliography which includes, where possible, downloadable versions of the literature, and excavation diaries. This site differs from those discussed above in that it also includes directions for individuals who wish to visit the site, and links to related Web resources. The Çatalhöyük Website lies somewhere between that of Parks Canada, which promotes historic sites as tourist attractions, and resources such as tDAR and Open Context, which aim to provide access to digital archaeological data.

This chapter provided a review of some of the well-developed online resources for archaeological information in Canada, and elsewhere, as well as a review of the online accessibility of archaeological collections housed in Canadian museums and universities. It is clear that there is a range of material generated during archaeological fieldwork to which various sources are interested in providing access. This thesis differs from these projects in that the focus is on public access to objects. The Canadian museum community is obviously committed to providing online collections access; however the degree to which this is targeted at a public audience is debatable. The degree of public, online access to Canadian university collections of archaeological materials is, for the most part, deplorable. As public institutions dedicated to education, universities must improve. The

following chapter discusses the materials used in this thesis, which attempts to address the shortcomings in public access to university-based archaeological collections.

5.0 Materials

This chapter describes the materials used in this thesis. The first section describes the archaeological collection that was chosen to be presented online, while the second section explains the software used to present the collection.

5.1 The Grand Rapids Survey collection

In 1960, in preparation for the Grand Rapids Reservoir hydroelectric project, J. Norman Emerson and students from the University of Toronto completed a brief archaeological survey of the area around Grand Rapids, Manitoba, identifying at least three sites, including the Tailrace Bay Site (FgLt-1) (Mayer-Oakes 1970:3). The following two years of archaeological field work, both directed by William J. Mayer-Oakes, of the University of Oklahoma in 1961, and the University of Manitoba in 1962, were sponsored in part by the University of Manitoba in what was the institution's first foray into archaeological field work (Mayer-Oakes 1970:3; Pettipas et al. 1998:136). The 1961 field season involved additional investigation of the area and the documentation of 39 sites (Mayer-Oakes 1970:9). Five (including the Tailrace Bay Site) of the 39 sites were test excavated, while 11 were examined via shovel testing (Mayer-Oakes 1970:9). The Tailrace Bay Site was identified as the most productive site, and the most at-risk as a result of the impending construction. Consequently, salvage excavation of the Tailrace Bay Site was conducted during the 1962 field season.

The collections generated during the Grand Rapids Survey (GRS) of 1961 - 1962 comprise a substantial part of the Department of Anthropology's archaeological holdings. Reports of the actual number of artefacts contained within the collection vary. The low

end identifies “[o]ver 44,000” artefacts (NLHS 2002:87), the mid-range estimate sits at “approximately 50,000” (NLHS 2005:2), while a summation of the ‘Quantity’ field in the catalogue spreadsheet indicates a total of 66,956 (NLHS 2005, appendices 2,3). The collection catalogue identifies a total of 11 different categories of material. In addition, the Department houses archival materials associated with the artefact collection and excavation, including preliminary reports, artefact counts, maps, wall profiles, level summary sheets, drawings, photographs, field notes and personal correspondence. None of this documentary evidence was included in UM Archaeology (<http://umarchaeology.streptirnt.org>) due to copyright concerns.

The GRS collection was selected as the basis of this thesis for three reasons. First, it is one of the few collections curated by the Department of Anthropology that had been catalogued at the start of this project, meaning that I did not have to identify the entire collection myself. (A larger portion of the collection has now been catalogued as a result of the digitization project discussed in section 2.2). Northern Lights Heritage Services Inc. (NLHS) catalogued the GRS collection between January 2004 and February 2005. The spreadsheets that contain the catalogue are copyrightable by the creator, but the facts contained within the spreadsheet are not, thus I was able to use the information in the spreadsheets to populate my database. This primary data source is curated by the University of Manitoba Department of Anthropology. NLHS produced photographs during the cataloguing process, and permission was obtained to reproduce these images online. Second, the collection contains objects from a variety of artefact categories and time periods, thus providing visitors to the Website with an opportunity to view a range of materials with which archaeologists routinely work, not simply one artefact class.

Finally, a post-impact assessment of the original study area, conducted in 2002, revealed that none of the sites originally identified during the GRS remained intact (NLHS 2005:2). I always planned to include maps showing approximate site locations on the Website. Although I was confident that the map was not detailed enough to function as a roadmap to the sites in question that could be used by looters, I was more comfortable putting the map online knowing that the future research potential of the sites had already been destroyed.

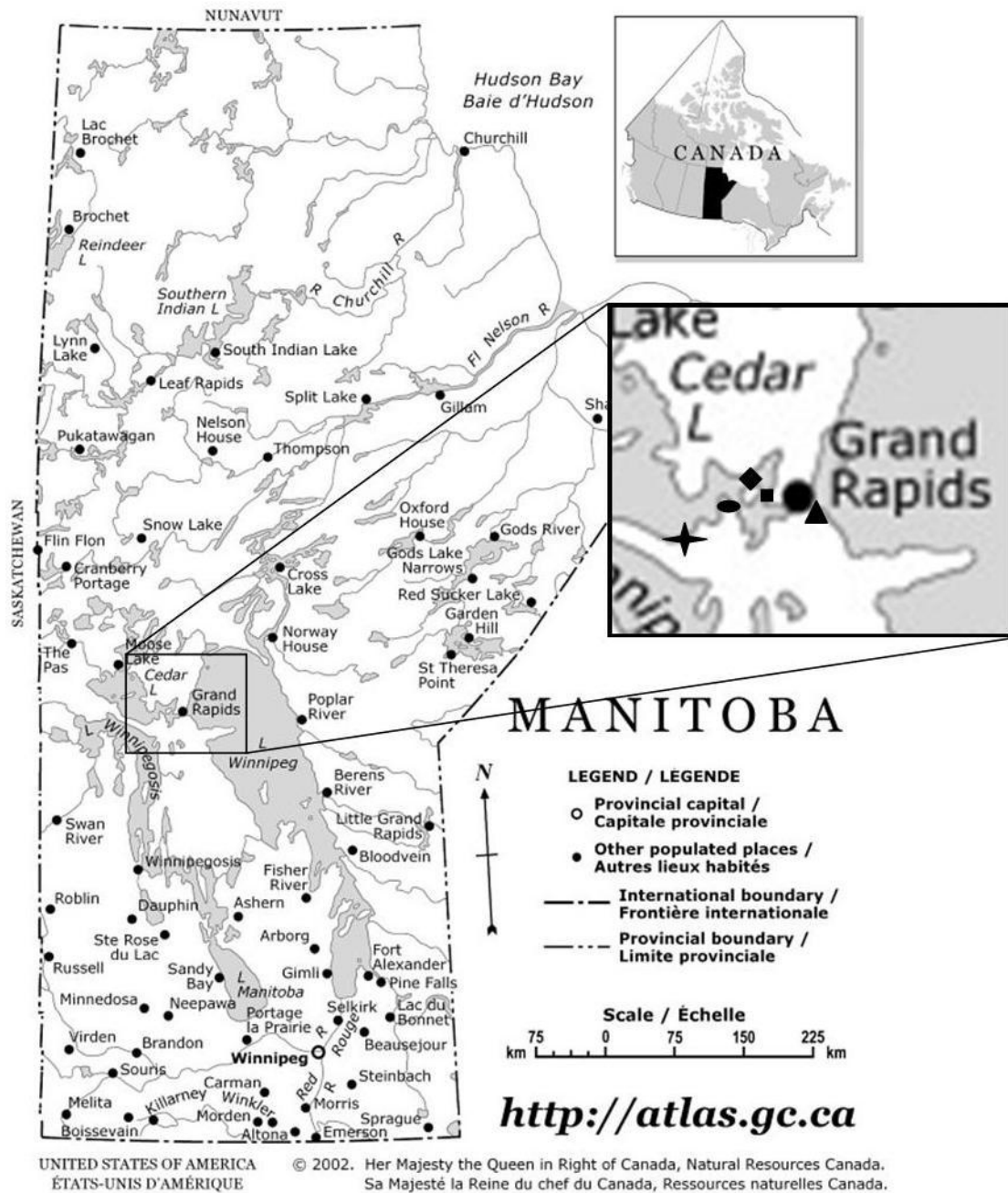
Five of the 39 GRS sites were selected for this thesis: FgLt-1, FgLw-2, FhLv-2, FhLv-7 and FhLw-1 (Fig. 5-1). Test excavations were carried out on all five sites, and a major excavation was conducted at FgLt-1, resulting in the availability of additional contextual information (the depth below surface from which the objects were recovered) for the collections generated from these specific sites. Field records were generated during the studies conducted at the five chosen sites, which ideally would have been included in UM Archaeology if not for copyright concerns.

5.2 Streetprint

UM Archaeology was published to the Web using Streetprint 5, developed by the Canada Research Chair / Canada Foundation for Innovation Multimedia Humanities Computing Studio (CRC Studio), based at the University of Alberta in Edmonton, Alberta. Streetprint began as a database-backed Website designed to share a collection of historic British street literature, but developed into an open-source software engine (The Streetprint Engine) designed to host multiple sites, sharing a variety of collections with an online audience (Ogle 2004:2,4,6). Today the CRC Studio hosts streetprint.org, a

nucleus for all Streetprint sites, including UM Archaeology (CRC Humanities Computing Studio 2005). The mission guiding the development of Streetprint is to “make formerly inaccessible texts and other artefacts available in an exciting new way to researchers, students, and the general public alike” (CRC Studio 2009). Additionally, as an open source project, developers post source code online to allow others to view, comment on, and critique the Studio’s work (Ogle 2004:20). Thus, the philosophy behind Streetprint is consistent with the main objective of this thesis, to make collections accessible, and the transparency created by open source software mirrors that promoted by a post-processual theoretical framework. In addition, Streetprint was developed to be image-driven, in an “attempt to mimic, as closely as possible, the experience of sitting down with the texts themselves” (Ogle 2004:4). This focus on images, as well as other features that encourage browsing the collection (e.g. categories and featured artefact) (Ogle 2004:16,25) are ideal to meet the needs of a non-professional audience. The fit between these two projects at an ideological level seemed natural, and the features that would assist a non-professional user to browse the collection only strengthened this stance. In practice, though, using a program designed primarily for use with textual collections to share archaeological collections was not a seamless match. The modifications that were necessary to accommodate an archaeological collection will be discussed in section 6.2, Modifications to Streetprint.

Figure 5-1. Map of Manitoba showing locations of sites the collections of which were used in this thesis (FgLw-2- ✦, FhLw-1 - ●, FhLv-2 - ◆, FhLv-7 - ■, FgLt-1 - ▲).



Base map is “Manitoba with Names Map”, available online at http://atlas.nrcan.gc.ca/site/english/maps/reference/outlineprov_terr/man_outline_names/map.jpg, and published by the Government of Canada. This adaptation is not produced in affiliation with, or endorsed by, the Government of Canada. Adapted with permission.

6.0 Methodology

This chapter outlines the methods that were followed to bring the GRS collection from objects in a drawer to words and images on a screen. A description of drafting the online survey and soliciting user feedback is also provided.

6.1 Treatment of the data

Establishing online access to the GRS collection was not a simple procedure. It was necessary to modify some of the data that existed as part of the collection spreadsheet and to produce additional content. The following paragraphs describe the steps that were followed to prepare the data for online presentation.

6.1.1 Collection spreadsheet

Northern Lights Heritage Services, Inc. catalogued the entire GRS collection, and in the process, created a number of Microsoft Excel spreadsheets containing the catalogue, and produced digital images of some objects (NHLS 2005). The records relating to the five sites selected for this thesis were copied from the file “Grand Rapids Complete Catalogue Record 2004.xls” and pasted into a new spreadsheet. Catalogue records were, for the most part, used as-is; it was beyond the scope of this thesis to verify the accuracy of the records. I did, however, make some changes to the spreadsheet to aid with the online presentation, and to correct errors. For example, I changed obvious oversights (e.g. faunal material being assigned a category of ‘lithic’), corrected spelling mistakes and made changes to achieve consistency in the data (e.g. changed categories identified as ‘fauna’ to ‘faunal’ to be consistent with the majority of records). In addition,

two stone pipes were assigned a manufacturing technique of “Native”. I was uncomfortable with this terminology and changed it to “precontact”.

Some field labels in the spreadsheet were changed and/or added to better mesh with the structure of Streetprint. For example, Streetprint displays the Object Name field above the image for the record; it is the textual identifier for each record. I felt that “Humerus, Loon, Left” was more meaningful than simply “Humerus”. Thus, in some situations, fields were merged together into a larger Object Name field, to make the one field displayed as the name of the object as informative as possible. The fields that were merged varied depending on how the artefacts were originally catalogued. I added a taxonomic class designation to the faunal records as a Streetprint-defined Category to permit searching by this parameter. Due to duplication of catalogue numbers in the original spreadsheet, each record was assigned a unique identification number, which allowed individual records to be pinpointed. Some information was removed from the records based on concerns for site security (e.g. UTM coordinates) and privacy (Cataloguer, Catalogue Date).

The data already existed in digital format, thus, rather than manually entering almost 8500 records through Streetprint’s back end, editor interface, CRC Studio staff were able to automate the upload process from the spreadsheet. A similar process was followed to attach images to the records. After the records were uploaded to the site, a random sample of 100 records was examined to verify the accuracy of the data. The online record was compared to the original spreadsheet created by NLHS and the modified spreadsheet. In all cases, the data from all three sources matched, indicating that the online presentation is a true representation of the original catalogue data.

6.1.2 Image production

Originally, I wanted to include a photo/image of every object/group of objects for which a record existed. Streetprint was intended to be visually oriented, and in fact requires each record in a given collection to have an associated image/images (Ogle 2004:31). A fire and subsequent 18-month closure of the Duff Roblin Building, where the GRS collection is housed, impacted the production of this thesis in general, and the generation of images in particular. Access to the collections storage area, and as a result, the collections on which this thesis is based, was severely restricted due to construction activity and safety concerns, and photographing all of the objects presented was not possible. Thus, two artefact retrieval missions were conducted. Due to the nature of field work (test excavations) at four of the sites, there is not an abundance of artefacts, and I was able to remove what I thought was the entire collection for these sites from storage. The Tailrace Bay Site, the excavation of which resulted in a large collection, presented more of a problem. Due to very limited laboratory access time and a dearth of secure storage and work space outside of the Duff Roblin Building, a simple sampling strategy was devised by which to remove portions of the collection. The Tailrace Bay collection is housed in drawers based on category (e.g. faunal, lithic, ceramic, historic). One large box representing each category was removed to an accessible location. An effort was made to find the box with the smallest catalogue numbers (i.e. the start of the collection), but this plan was not always successful. The rationale behind this was that if and when objects were sorted (in the database) by catalogue number, the records with images would show up first, and users would not be faced with a screen full of records without images. This is perhaps not the best strategy by which to retrieve artefacts, but it seemed the most

logical given the strict access limitations to the fire-damaged building. In addition, two boxes of archival materials related to the GRS were removed from the storage area.

At least one image was produced for each artefact that was removed from storage. Images were captured using either a Canon Power Shot G9 digital camera attached to a camera stand at 4000 x 3000 pixels, or an HP Scanjet 5590 flatbed scanner. Scanning was reserved for glass beads, and a number of other glass objects. All images were cropped to reduce unnecessary background using Microsoft Picture Manager, and resized to the “Web-Small” option in the same program.

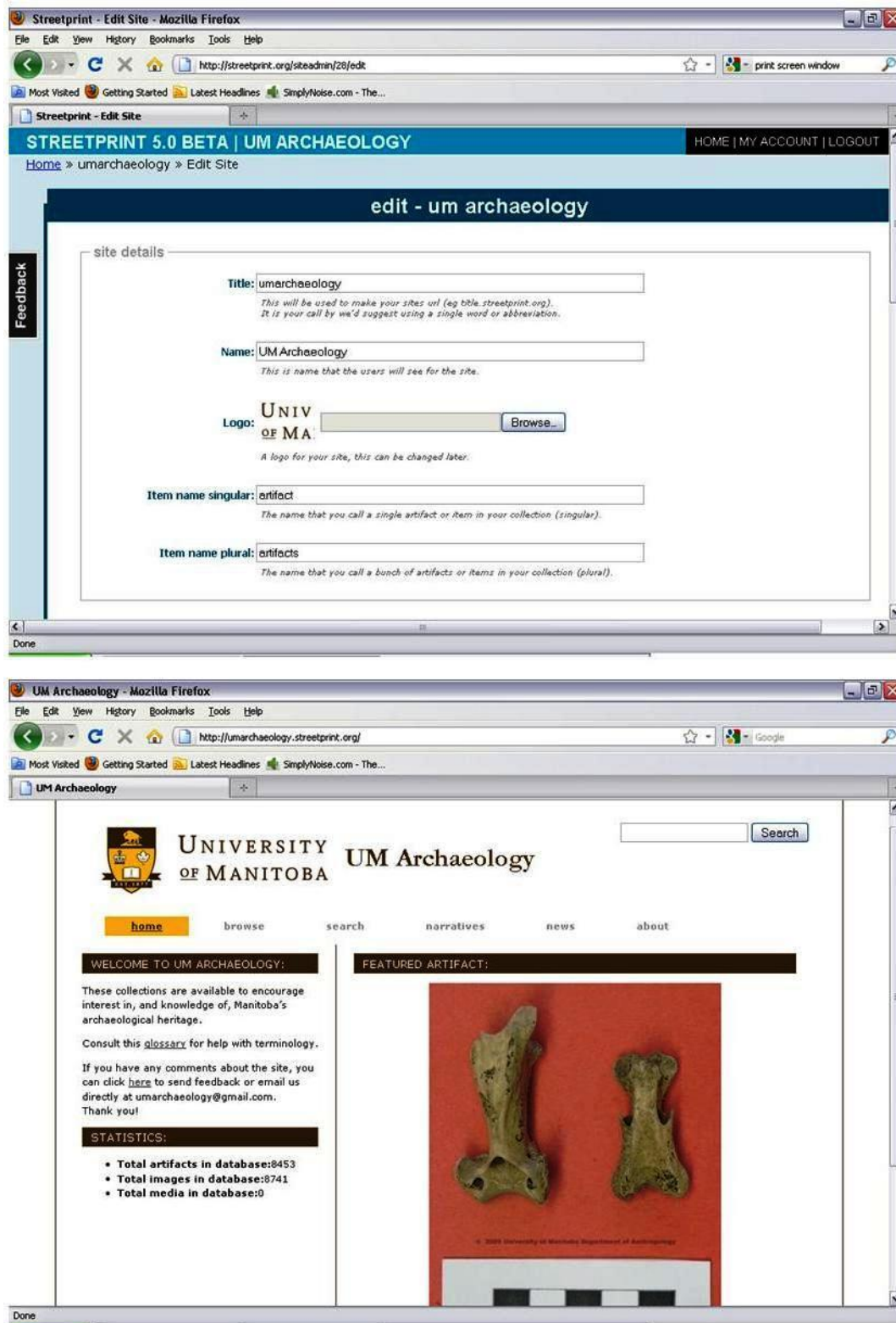
Each image was marked with a watermark indicating the copyright holder (NLHS or Department of Anthropology) using Mark IT Now 2.1 Pro, a cheap and effective piece of software (<http://www.seq-soft.info/>). Resizing and watermarking the photos were both attempts at reducing unauthorized use of the images. The size to which the photos have been reduced is adequate for viewing on-screen, but results in poor quality images when printed. In addition, the watermarks are generally placed between the object and the scale to decrease chances that they could be easily cropped out of the image. Assigning copyright to the holding institution is consistent with the practices of many Canadian museum Websites that provide online collections access (Canadian Heritage Information Network 2009e; Canadian Museum of Civilization Corporation 2010; Royal BC Museum Corporation 2010). A generic “No image available” image was produced to be attached to every record for which I had not produced, or did not have access to, a photographic image. Criticisms of this process are discussed in section 8.2.1.

6.2 Modifications to Streetprint

Streetprint has two user interfaces: a back end editor interface where records can be created, edited and deleted, and a front end interface that site visitors see (Ogle 2004:26) (Fig. 6-1). Due to the number of changes that needed to be made, and the time limitations in place, attention was focused on making the front end interface display correctly. The editor interface retains the original Streetprint appearance with the original field labels. Changes were made to the original structure of the collections spreadsheet to make the information more amenable to the Streetprint template. Despite these changes, it remained necessary to modify to the Streetprint template before the collection catalogue could be uploaded. Field labels were changed to reflect the subject matter of the data set. Where possible, fields were used as is (e.g. Date details, Location), or a different label was applied to current fields (when the nature of the field was appropriate e.g. long text field as in the case of Introduction). In other cases, fields were added as “Custom data” fields (e.g. References, Material, Colour). Table 6-1 presents a comparison of the original Streetprint field labels, and the final set of labels used for this archaeological collection.

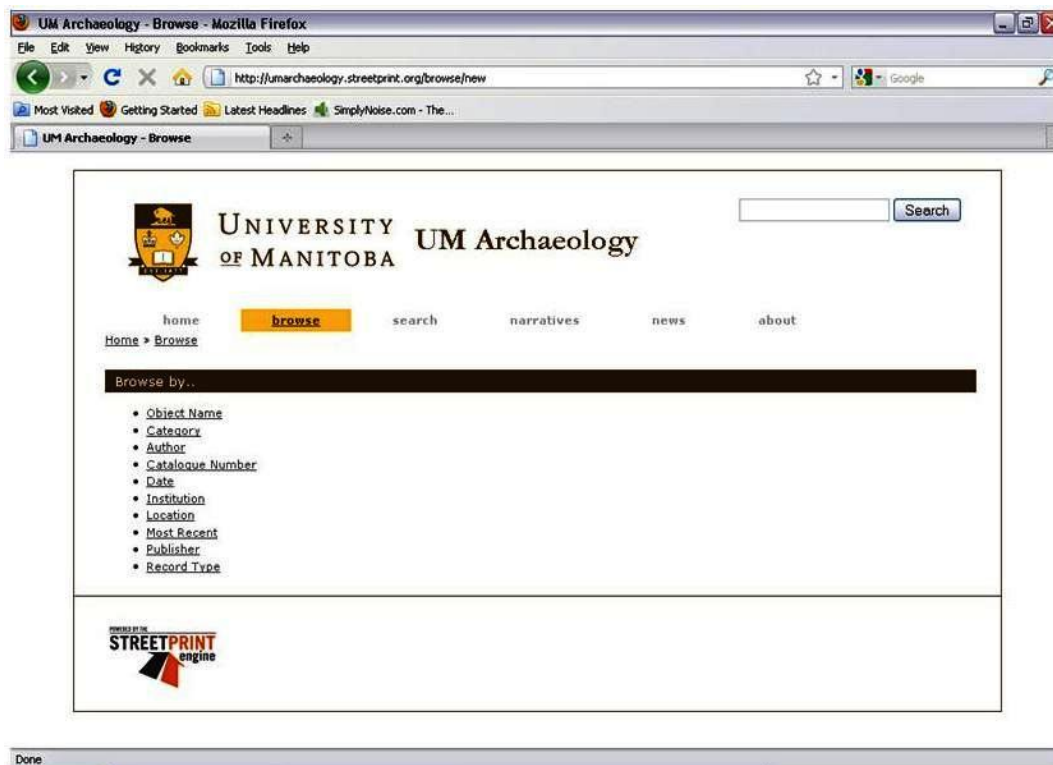
The homepage was the most frequently viewed page on the Website, and from there, users could navigate the site via six tabs across the top of the page: Home, Browse, Search, Narratives, News and About. Clicking on the Home tab returned the user to the homepage. The Browse and Search tabs allowed users to explore the site’s content in a variety of ways. The News and About tabs allowed the site editor (me) to provide additional information about the Web publication of the content and recent developments to the site. The Narratives tab was not used (see section 8.2.1 for a discussion of why).

Figure 6-1. Screen captures of the UM Archaeology editor interface (top) and user interface (bottom). Courtesy CRC Studio. Reproduced with permission.



The Browse tab required significant changes, and in particular, the Category section. At the start of the study period, it was not possible for the editor to customize the browse choices; however this is an option that the development team is looking into providing in future versions of Streetprint (Mark Madsen, personal communication 2010). In the end, there were too many options under the Browse tab (Fig. 6-2), particularly because numerous options led to the same information, as it was interpreted for this archaeological collection (e.g. Author, Publisher, Institution). If, however, collections from different institutions were being presented, these fields may have become more relevant. The development team made some changes to the browse page as per my requests; however, due to time constraints it was necessary to prioritize and go live before all of my desired changes could be implemented.

Figure 6-2. Screen capture of the Browse tab of UM Archaeology. Courtesy CRC Studio. Reproduced with permission.



Search fields available under the Search tab were originally Object Name, Category, Author and Publisher. Object Name was changed to a generic Search, and I asked to have Author and Publisher removed because, in the context of an archaeological collection from a single institution, these additional options simply served to clutter up the search page. The search field searches primarily the Object Name field; however, if one searches for a term that is found anywhere in a record, that record will appear in the results.

Table 6-1. Comparison of original Streetprint field labels with modified field labels and custom fields for archaeological collections.

Original fields	Modified fields	Custom fields
Title	Object Name	Object Portion
Authors	Author	Material
Location	Location	Pattern
Reference Number	Catalogue Number	Colour
Publisher	Publisher	Marks
Document Type	Record Type	Manufacturing Technique
Year	Not used	Manufacturer
Month	Not used	Condition
Day	Not used	Borden Number
Date details	Date Details	Depth Below Surface
Dimensions	Dimensions	Unique reference ID
Pagination	Quantity	References
City	City	Summary of Collection
Illustrations	Not used	
Text ID	Not used	
Notes	Notes	
Full Text	Introduction	
Category	Category	

Previous versions of the program allowed the editor to plot a location on a Google map that could be accessed by clicking on the value in the Location field. This was one of the things I was most excited about, as it provides that level of context to users that I

think is missing in many online presentations. When the site was updated at one point, the mapping function was not updated along with the rest of the site. I was adamant that this one feature be functional before I began to solicit feedback. When the mapping feature was functional again, it worked differently in that I was not able to plot a precise location (the site); rather, it defaulted to the location of the town in the location field (Grand Rapids or Easterville). In addition, while I would have preferred to have the default view zoomed out to show the entire province (less work on the user's behalf to get to a meaningful view), that was not possible. I had also asked if the developers could make Google maps unable to zoom beyond a certain point, to avoid providing the precise site location. This question became moot as only the location of the nearest settlement is plotted on the map, not the site location. A note explaining this was posted under the About tab.

Throughout the development process, I noted that the site displayed differently depending on what Web browser I used. The development team explained that they never intended for Streetprint to work with Internet Explorer 6 or in Compatibility Mode in Internet Explorer 8. A quick poll using Facebook contacts as a substitute for the entire population suggested that Web browser choice was more diverse than just Safari or Google Chrome (the two Web browsers in which the site displayed properly), and additionally, the majority of people used Internet Explorer. I contacted the school divisions who had agreed to send the request for research participation to their teachers (see section 6.3.2), and they also used Internet Explorer. Thus, it was necessary to make the required changes to have UM Archaeology display properly with Internet Explorer. See section 7.3 for additional details about users' Web browser choices.

6.3 User feedback and visitor tracking

Publishing UM archaeological collections online was the first objective of this thesis. The second was to track site visits and usage with Google Analytics and to solicit and study user feedback. I knew why I had presented the information in a certain way, but I was interested in whether the presentation worked for users.

6.3.1 Feedback mechanisms

A request for feedback and three options to provide comments were presented to users on the site's homepage, immediately below the welcome message. In addition, all requests for research participants stated that feedback was desired, and directed users to the homepage for further details (see Appendix A for full text). Users were invited to provide their evaluations in one of three ways: "click here" to provide feedback, to send an e-mail to a given address, or to complete a brief survey. Users who followed the "click here" option were directed to a fillable-form webpage which allowed them to send anonymous comments by typing into an empty text box and clicking a "Submit" button (Fig. 6.3). Both the anonymous form and e-mail options were provided based on the experiences of Carol McDavid who found that strangers were more comfortable providing feedback of her archaeology Website through anonymous channels, while acquaintances and friends more frequently e-mailed her directly (McDavid 2004:175). In addition, Web-user research shows that the less work required by a user, the more "goodwill" they retain while visiting a Website, and hopefully, the more likely they would be to comply with a request such as "Please provide feedback" (Krug 2006:161-

167). The “click here” option provided the user immediately with a form in which to provide feedback, while the e-mail option required more work.

Figure 6-3. Screen capture of feedback form provided for users to send anonymous comments about UM Archaeology.

The screenshot shows a web browser window titled "UM Archaeology Feedback - Mozilla Firefox". The address bar displays the URL "http://home.cc.umanitoba.ca/~umczyrny/form.html". The page content includes a title "UM Archaeology Feedback" and a paragraph of text: "Thank you for evaluating UM Archaeology. Your feedback will help improve online access to archaeological collections housed at the University of Manitoba. Enter any feedback about the site (umarchaeology.streetprint.org) in the box below. All comments are anonymous and any identifying characteristics will be removed prior to analysis. If specific comments are published, they will not be attributed." Below this is another paragraph: "This research has been approved by the Joint-Faculty Research Ethics Board. If you have questions, concerns or complaints about your participation in this project, please contact Ashleigh Czymny (researcher) at umczyrny@cc.umanitoba.ca or Professor Gregory Monks (supervisor) at monks@cc.umanitoba.ca (both Department of Anthropology, University of Manitoba Ph: 204-474-9361) or Margaret Bowman at margaret_bowman@umanitoba.ca (Human Ethics Secretariat, University of Manitoba Ph: 204-474-7122)." A large text input area labeled "Comments" is provided for user feedback. At the bottom of the form is a "Send Feedback" button. The browser's status bar at the bottom shows "Done" and the taskbar includes icons for "start", "University of Manitob...", and "UM Archaeology Fee...". The system clock in the bottom right corner indicates "10:21 AM".

Users were directed to the survey mentioned earlier by following a link on the homepage, which took them immediately to the online survey (administered by surveymonkey.com) containing multiple choice, yes/no and open-ended questions. The survey was designed to obtain information regarding three broad categories: (a) the archaeological information presented (user satisfaction with information presented and educational impact of this information); (b) the Website itself (overall impressions of the

site, and how users navigated around it); (c) demographic information about users. A complete list of survey questions is presented in Table 6-2.

Two survey test-runs were performed. The first was a mock survey asking about today's newspaper, with responses used to give me an idea of what the survey data would look like. After casually perusing some resources on the SurveyMonkey Website, I reordered, reworded, and changed some questions, and decided that another test run was necessary. This time, I asked friends to complete a copy of the actual survey I would be using to collect feedback, but to note things like how long it took to complete, whether or not they understood the questions and if the background colour was pleasing or offensive. Based on their responses, I had an accurate time-to-completion estimate to provide potential participants, I changed the colour, I added some clarification words to categories (in the survey *and* in UM Archaeology), and I added some instructional text (e.g. "Click the "Submit>>" button below to submit your responses"). I noted that one of the demographic questions was frequently skipped, and added a "Prefer not to answer" response option to three of the demographic questions.

Table 6-2. Questions of which the online survey was comprised, including a description of question type.

Question	Wording of question	Question Type
1	What content did you find most interesting?	Multiple choice (choose all that apply), Additional comments
2	Were you satisfied with the information presented? If no, what other kinds of information would you like to have seen / seen more of?	Yes/No, Additional Comments
3	Rate the content of UM Archaeology on the following scale:	Rating scale
4	Overall, did you find UM Archaeology easy to navigate?	Yes/No, Additional comments
5	Are you likely to visit UM Archaeology in the future?	Rating scale
6	Did you learn something new about archaeology while exploring UM Archaeology? If yes, what was it?	Yes/No, Additional comments
7	What technique was most useful to you when navigating the Website? Why?	Multiple choice (choose one), Additional comments
8	Did you search for something specific? If yes, what was it?	Yes/No, Additional comments
9	Please use the following space for any additional comments you have about UM Archaeology.	Additional comments
10	Into which age category do you fit?	Multiple choice (choose one)
11	Indicate your gender.	Multiple choice (choose one)
12	Are you a student?	Multiple choice (choose one)
13	Into which category do you fall?	Multiple choice (choose one)
14	Choose the answer that best describes your occupation.	Multiple choice (choose one), Additional comments

6.3.2 Solicitation of research participants

UM Archaeology was not developed with one target audience in mind; rather, it was intended as a resource that would be useful to the general public and professionals alike. With this in mind, it was necessary to reach a broad range of potential respondents, including archaeologists, to first inform them of the site's existence, and secondly to seek their feedback. Approval for this process was obtained from the university's Joint Faculty Research Ethics Board (JFREB) (Protocol J2007:132).

Three Winnipeg school divisions were approached (St. James-Assiniboia, Pembina Trails, Seven Oaks) and, each agreed to forward a request for research participation to their teachers via e-mail (see Appendix A for full text of the request). The River East-Transcona School Division approved the research request, but indicated that I would have to contact principals individually to seek permission to contact teachers in individual schools about the project. I never intended to proceed in this fashion, nor had this process been approved by the JFREB, and thus no requests for participation were sent to the River East-Transcona School Division. The request that school divisions forwarded to teachers on my behalf was different than the others I distributed, as it asked the teachers to use the site in a class activity, if possible, and to have the students and themselves provide feedback.

Additional requests for participants were forwarded to the distribution lists of the Association of Manitoba Museums, Manitoba Anthropology Students' Association, University of Manitoba Graduate Students Association and the Department of Anthropology. The request was sent to the University of Winnipeg Anthropology

Students Association, but I cannot confirm whether it was ever forwarded to their distribution list. I personally sent an e-mail request to friends, family and colleagues, and placed a note on my Facebook profile letting people know that the site was live and ready for feedback, and asking for their assistance. I discovered after this thesis was completed that the Manitoba Archaeological Society had been unable to forward the request to their distribution list due to technical difficulties in their office during the study period.

The Department of Anthropology's Website does not mention the archaeological collections in its care. Originally, I intended to place the following on the homepage: "Search the Collections (and help improve public access to archaeological materials housed at the University of Manitoba by completing a short survey)" as a link that, when clicked, would take users to UM Archaeology. Unfortunately, the Website was under construction during the study period and this was not possible.

6.4 Community consultation

I felt that it was important to contact Misipawistik Cree Nation (Grand Rapids) to inform the community about the project, to ask for their participation in providing feedback, and to provide an opportunity for any questions or concerns about the project to be brought to my attention. A representative from the Traditional Lands and Waters Office contacted me to inquire about any human skeletal remains or sacred objects such as pipes in the collection. I confirmed for this representative that there were human skeletal remains in the collection; however these were not a part of the sub-collection presented online. I revisited the catalogue and confirmed that the database contained three pipes made of stone, two of which had been catalogued with a manufacturing

technique as “Native”. I unpublished the three pipes, informed her of their existence, sent a link to the record of a kaolin pipe to show how the three stone pipes were catalogued and inquire whether this was appropriate, and awaited further direction. I was informed that there were no problems with the presentation or publication: “That way we can see that they are there”. I also removed the category of “Leisure” from these three pipes, but retained the “Smoking” identifier. The community contacted the Department with a repatriation request involving human skeletal remains, pipes and tinkling cones, which was accepted. The Department deaccessioned the skeletal remains and objects in question, and transferred them to the Province of Manitoba’s Historic Resources Branch for repatriation to the community.

7.0 Results

The results of user feedback and visitor tracking are presented below. Survey responses are presented first, followed by other feedback. The chapter concludes with information gathered from user tracking.

7.1 The survey

The survey consisted of 14 questions which were multiple choice (one answer or multiple answers), a rating scale, or comment box (or a combination of these types). Five of the questions were used to ascertain a demographic profile of respondents, while the other nine asked the users for their opinions about the archaeological information presented, and the Website itself. Among these nine questions, six included text boxes to allow users to elaborate on their responses. One question simply invited users to make any additional comments.

7.1.1 Nature of the respondent population

The online survey was started by 107 people (107 people answered at least one question and proceeded to the following page of the survey); however only 103 people completed the survey. Surveymonkey.com, the Website through which the survey was administered, defines “starting” the survey as answering at least one question, and proceeding to the following page (at which time the participant’s responses are saved). “Completing” the survey requires users to proceed through all pages of the survey and click “Submit” at the end to submit their responses. Of the four individuals who did not complete the survey and submit their responses, one actually answered all of the

questions but did not click “Submit”; the other three stopped after Questions 6, 2, and 3, respectively. These incomplete responses will be included when “total” responses are presented. Whenever responses are analyzed based on demographic characteristics, individuals who did not indicate a response to the demographic trait in question will necessarily be excluded.

One hundred and four individuals indicated their age (Fig. 7-1). Almost half (n=50) were between 26 and 35 years of age, while approximately one quarter (n=27) fell in the 36-59 year category. Almost 20% (n=18) were between 19 and 25 years of age, less than 10% (n=8) were over 60, and only a single respondent was 16-18 years old. The majority of respondents were female (n=72), with only approximately one-third identifying themselves as male (n=30) (Table 7-1).

Fig. 7-1. Age of respondents (n=104).

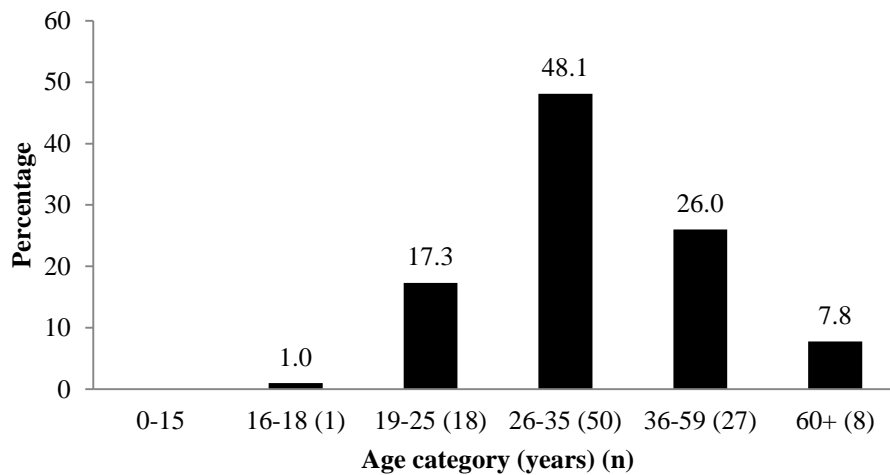


Table 7-1. Responses to question 11: Please indicate your gender (n=102).

Answer	#	%
Female	72	70.6
Male	30	29.4

The respondent population was almost evenly split between students and non-students (Table 7-2) with almost 80% of students identifying as graduate students (Table 7-3).

Table 7-2. Responses to question 12: Are you a student? (n=104)

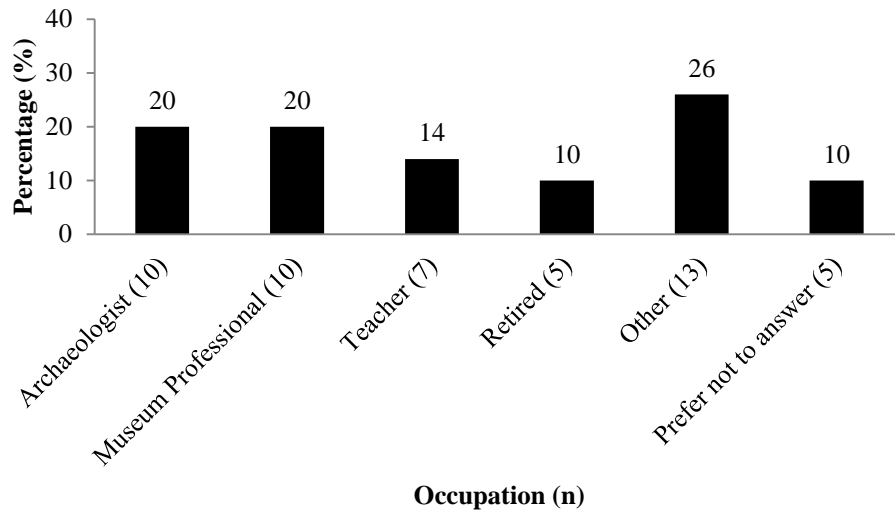
Answer	#	%
Yes	53	51
No	48	46.2
Prefer not to answer	3	2.9

Table 7-3. Responses of student respondents (n=53) to question 13: Into which category do you fall?

Answer	#	%
University student (Graduate)	42	79.2
University student (Undergraduate)	7	13.2
Prefer not to answer	3	5.7
College student	1	1.9
Student (Kindergarten - Grade 12)	0	0
Adult Education student	0	0
Other (please specify)	0	0

Non-students identified themselves as belonging to one of four given occupations, with “Archaeologist” and “Museum Professional” each chosen by 20% (n=10) of respondents. “Other (please specify)” was the most commonly chosen response (n=13) with professions such as payroll clerk, small business owner, library technician and shipper/receiver provided as responses (Fig. 7-2).

Fig. 7-2. Occupations of respondents (n=50).



7.1.2 Survey responses - Response rate

The survey consisted of 14 questions, each of which were left blank by at least two respondents. As a group, archaeologists did not skip questions, while non-archaeologists were more likely to leave questions blank (Table 7-4). One individual acknowledged this in their comments: “It is also difficult to fill out the survey because I cannot fairly situate this Website and its information in the broader context of archaeological collections and databases – either physical or online – so I have avoided answering a lot of the questions so far.” Nevertheless, the mean number of responses per question was 92, with a range of 50 to 105, and a standard deviation of 22.8.

7.1.3 Survey responses - User impressions of the archaeological information

Six questions asked specifically about the archaeological information being presented.

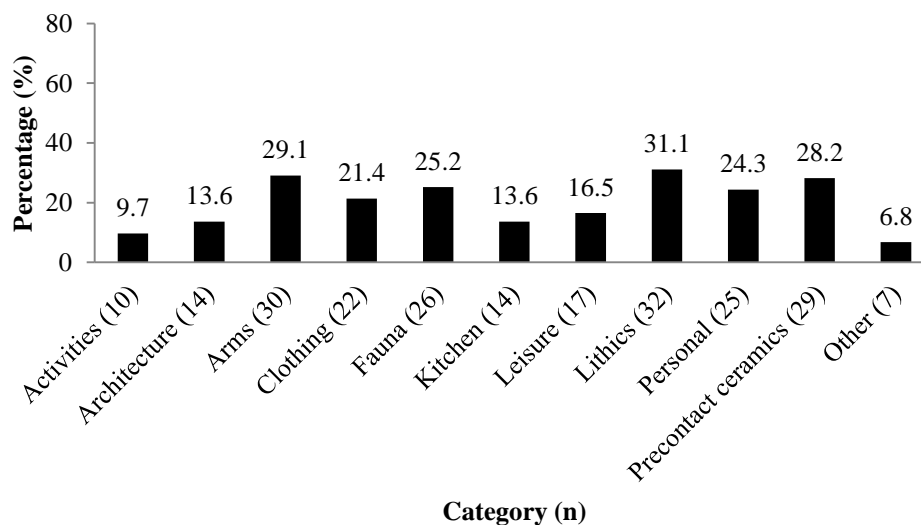
Table 7-4. Percentage of respondents who answered and skipped each survey question, presented as total respondents, archaeologists and non-archaeologists.

Question Number	Total respondents (n=107)				Archaeologists (n=10)				Non-archaeologists (n=94)			
	Answered		Skipped		Answered		Skipped		Answered		Skipped	
	n	%	n	%	n	%	n	%	n	%	n	%
1	103	96.3	4	3.7	10	100	0	0	90	95.7	4	4.3
2	105	98.1	2	1.9	10	100	0	0	92	97.9	2	2.1
3	102	95.3	5	4.7	10	100	0	0	90	95.7	4	4.3
4	105	98.1	2	1.9	10	100	0	0	94	100	0	0
5	103	96.3	4	3.7	10	100	0	0	92	97.9	2	2.1
6	103	96.3	4	3.7	10	100	0	0	92	97.9	2	2.1
7	103	96.3	4	3.7	10	100	0	0	93	98.9	1	1.1
8	104	97.2	4	2.8	10	100	0	0	94	100	0	0
9	47	43.9	60	56.1	6	60	4	40	41	43.6	53	56.4
10	104	97.2	3	2.8	10	100	0	0	94	100	0	0
11	102	95.3	5	4.7	10	100	0	0	92	97.9	2	2.1
12	104	97.2	3	2.8	10	100	0	0	94	100	0	0
13	53	49.5	54	50.5	0	0	10	100	53	56.4	41	43.6
14	50	46.2	57	53.3	10	100	0	0	40	42.6	54	57.5

Question 1 – What content did you find most interesting?

Question 1 asked users to identify which content (categories of artefacts as identified in the catalogue were used as possible responses) was most interesting (and to choose all that applied). Results of the total respondent population (n=103) indicate a diverse interest in categories, with all possibilities identified at least 10 times as “interesting” (Fig. 7-3). Lithics was most frequently identified by respondents, while arms, precontact ceramics and fauna were all selected by over 25% of respondents. Over 20% of respondents selected clothing and personal as interesting. There was thus a considerable interest among total respondents in all artefact categories available.

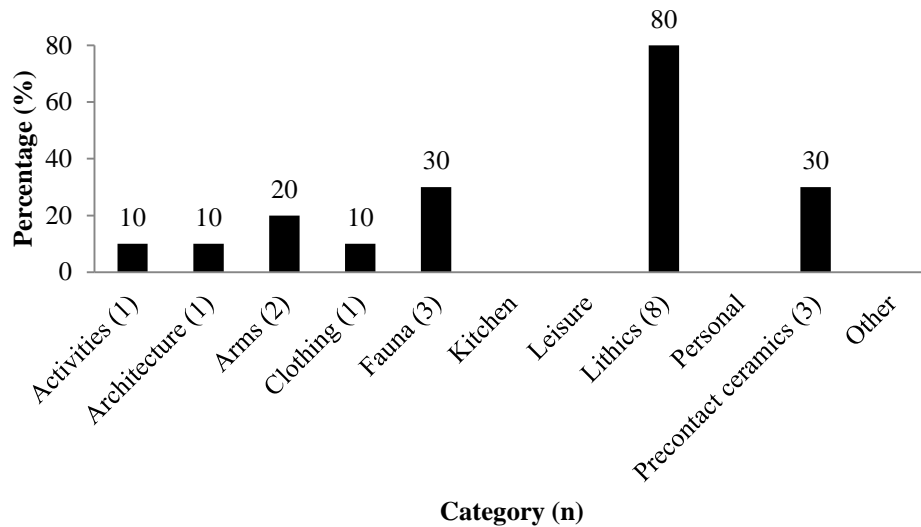
Fig. 7-3. Responses of total respondents (n=103) to question 1: What content did you find most interesting?



When the archaeologist and non-archaeologist populations are separated, interesting patterns appear. The content described by archaeologists as “interesting” clusters around the three main categories of precontact archaeology: lithics, fauna and precontact ceramics. Lithics was identified a majority of times (80%) by archaeologist

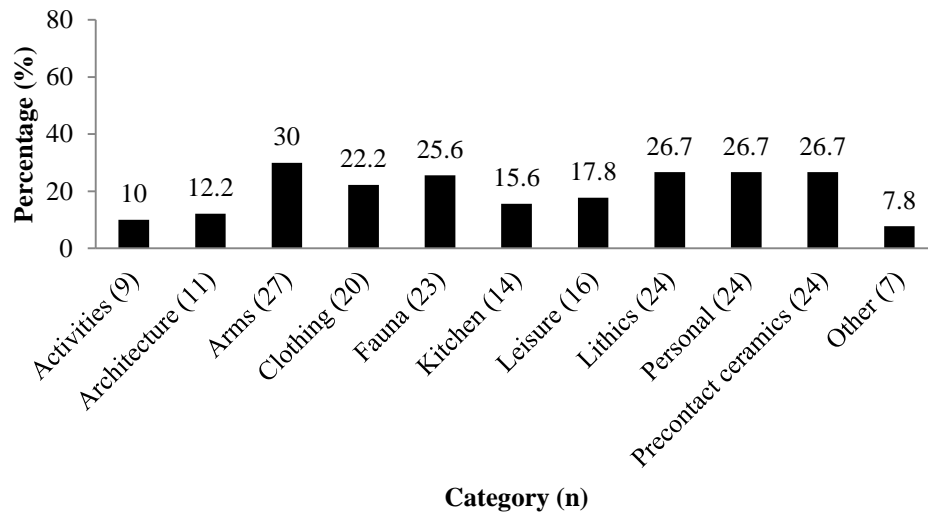
respondents (n=10), with fauna and precontact ceramics each identified three times. Kitchen, leisure and personal were not selected (Fig. 7-4).

**Fig. 7-4. Responses of archaeologists (n=10) to question 1:
What content did you find most interesting?**



Non-archaeologists (n=90) appear to have more diverse interests, with every category being selected at least 9 times (Fig. 7-5). The proportions exhibited in the responses of this group generally mimic those of total respondents, with one exception: lithics are *not* the most commonly identified category, but are below arms and are equivalent to precontact ceramics and personal.

Fig. 7-5. Responses of non-archaeologists (n=90) to question 1: What content did you find most interesting?



This group can be further subdivided based on a number of demographic characteristics (Fig. 7-6). Female respondents (n=65) exhibited diverse interests, with each category chosen at least 12% of the time. Fauna and precontact ceramics were chosen most frequently by this group, each identified almost 30% of the time, while clothing, lithics and personal shared second spot were each selected by almost 25% of the time. Activities and architecture were identified least frequently. Conversely, responses of male non-archaeologists (n=25) were heavily in favour of one category, with arms being identified by over half of respondents in this group (52%). Lithics and personal were the second most-frequently chosen categories, each being selected by 32% of respondents.

Student respondents (n=51) indicated similarly diverse interests to the total population of non-archaeologists, with each category chosen at least five times. Four categories, however, do stand out. Some results are consistent with those of archaeologist respondents, while others resemble those of non-archaeologist respondents. Lithics were

the most commonly chosen category, selected by over 35% of respondents, with fauna and precontact ceramics identified over 27% of the time. Arms were also identified by almost one third of respondents. The remaining six categories were each identified by fewer than 20% of respondents. The preferences of non-students (n=37) are less evident. Personal was selected most frequently among this subpopulation, and both clothing and arms were identified by over 25% of respondents. Lithics and fauna both fall below 20%; however all categories *were* identified by at least 10% of respondents.

Among museum professionals (n=10), arms was the most commonly chosen category (55.6%) followed by precontact ceramics, fauna and personal. Interestingly, lithics, a preferred category among most other subpopulations, was not selected by any respondents. Similarly, teachers (n=7) did not identify lithics or fauna as interesting. Personal was the most commonly chosen category among teachers, selected by almost 60% of respondents, followed by leisure and clothing, each chosen by almost 43% of respondents.

Seven respondents (all non-archaeologists) added comments under the “Other (please specify)” choice; three individuals indicated an interest in objects using object name or subcategory (toys, decoration, adornment, jewelry); one indicated that anything with a photo was interesting, while two critiqued the images on the site, saying there were not enough, and those present were too small.

In summary, archaeologist respondents (n=10) seem to have more well-defined areas of interest than any other subgroup of the total respondent population (n=107). Subgroups of non-archaeologists appear to have wide-ranging interest in all of the

categories presented. Museum professionals (n=10) and teachers (n=7) stand out among subgroups for their non-interest in lithics, which were identified as interesting by large portions of other subpopulations.

Fig. 7-6. Responses of subpopulations of non-archaeologists to question 1: What content did you find most interesting? Each graph represents one category of artefact. Percentage is plotted on the y-axis, with subpopulations (n) on the x-axis (M = Males (n=25), F = Females (n=65), S = Students (n=51), N-S = Non-students (n=37), MP = Museum Professionals (n=10), T = Teachers (n=7)). Continued on following page.

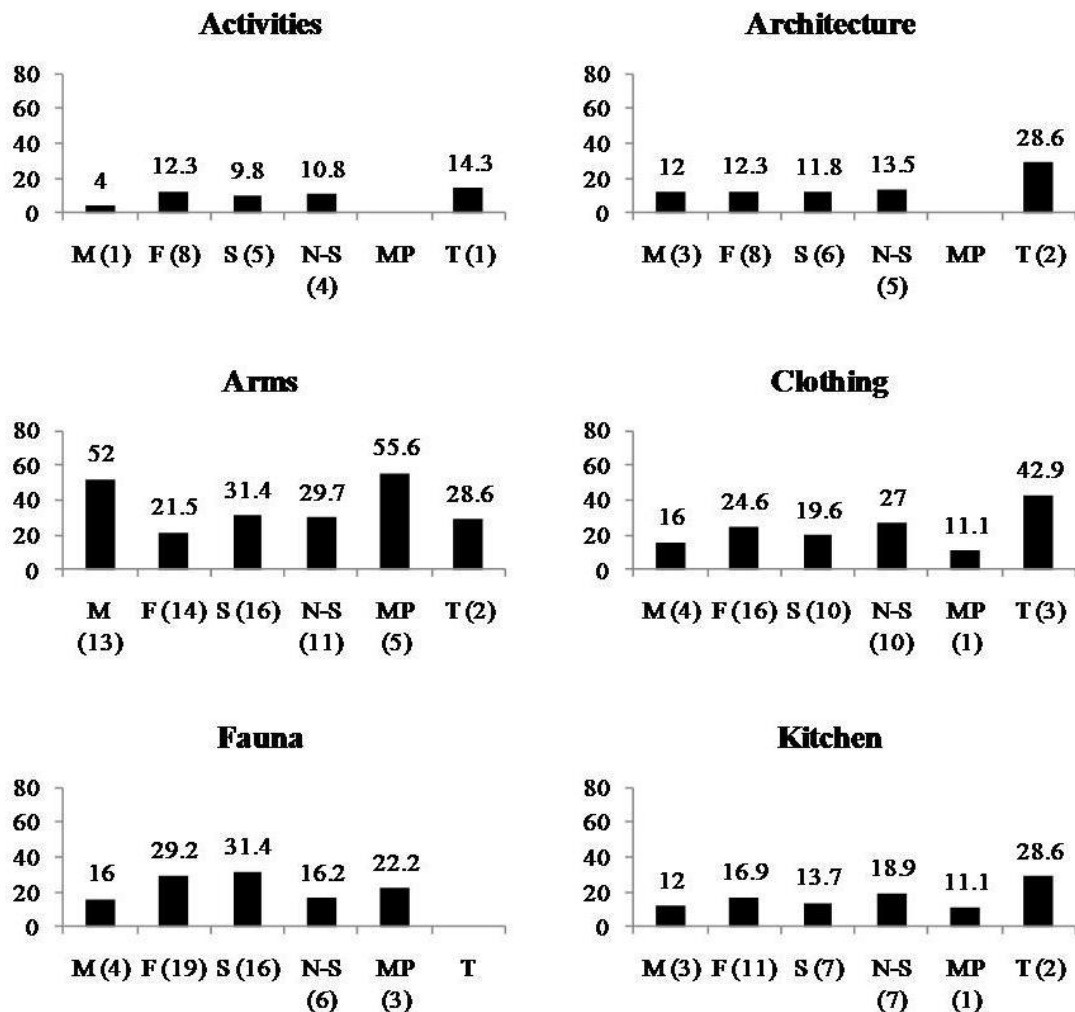
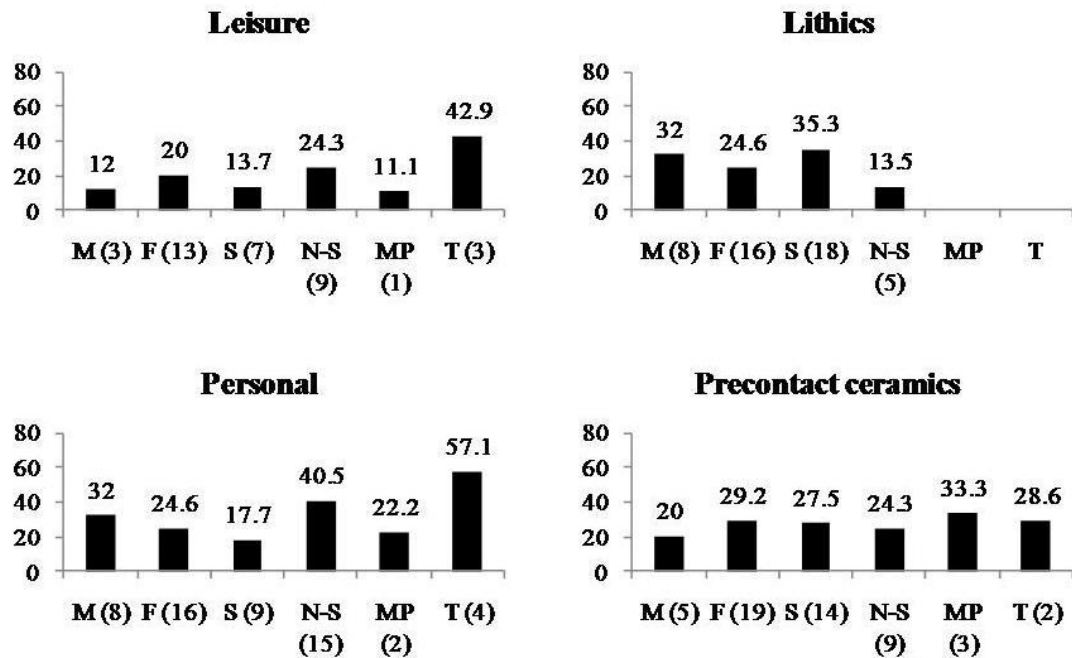


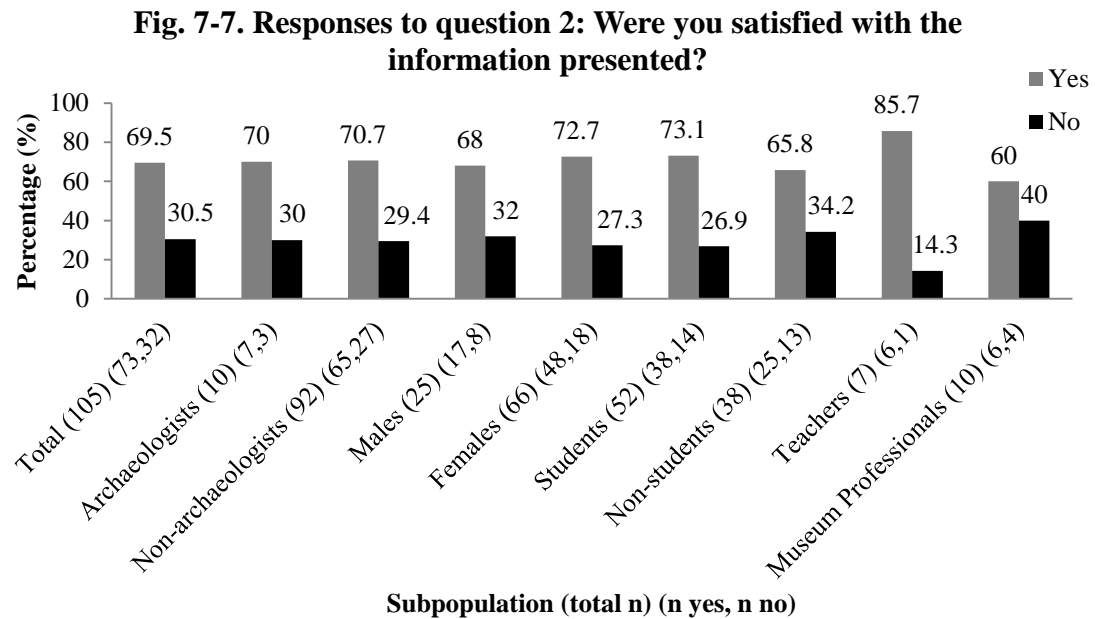
Fig. 7-6. (cont'd)



Question 2 – Were you satisfied with the information presented? If no, what other kinds of information would you like to have seen / seen more of?

The percentage of respondents indicating that they were satisfied with the information hovers around 70% regardless of the way respondents are divided (Fig. 7-7). Archaeologists (n=10) were slightly less satisfied with the information presented than non-archaeologists (n=92). Male non-archaeologists (n=25) were less pleased with the information provided than female non-archaeologists (n=66). While students (n=52) were generally content with the information provided, non-students (n=38) were less impressed. The majority of teachers (n=7) were satisfied with the information presented, while museum professionals (n=10) were the least satisfied of all subpopulations.

Overall, users were satisfied with the information presented on UM Archaeology (~70%), with variation according to gender and occupation (60 – 85.7%).



A text box was provided for users to indicate what other kinds of information they would like to have seen, with 37.1% (n=39) of respondents adding additional comments. Many users (41%; n=16) mentioned more photographs or visual depictions of the artefacts as the one thing they would have liked to see more frequently (e.g. “More pictures of the items collected! A picture is worth a thousand words, right?”). Twelve respondents (30.8%) indicated that they would appreciate some sort of additional contextual information, which is another common theme. Responses ranged from those with a decidedly archaeological flavor: “I have no idea of the sites involved. Was it a midden, an old homestead, a fort?” and “Name of Primary Investigator. Publication (if any) of site analysis.”, to individuals who were looking for “More links to the history or the people” and “more historical information”. Date and use/function/definition were

each mentioned by six respondents (15.4%). Two users indicated that they would like to have seen plant remains. Two individuals used this space to comment on the search and result-display capabilities of the site. Survey respondents indicated a high level of satisfaction with the information presented; however comments suggest that visual representations of the artefacts and contextual information are the two main areas in which users would like to see improvement.

Question 3 – Rate the content of UM Archaeology on the following scale.

Users were asked to rate the overall content of the site on a scale from “Not interesting” to “Very interesting”. Almost two thirds (64.7%) of total respondents (n=102) rated the content as “Interesting” or “Very Interesting”. Approximately one third found the content “Somewhat Interesting”, while 4 individuals (3.9%) did not find the content interesting. Responses for all subpopulations except teachers mimic those presented above for the entire group. “Interesting” is consistently the most commonly chosen response, followed by “Somewhat Interesting”. Around 10% of respondents in each subgroup rated the content as “Very Interesting” (increasing to as high as 16.7% of male, non-archaeologists (n=24) and 14% of students (n=50)). “Not interesting” was generally the least popular choice; however among non-students (n=39), “Not interesting” and “Very interesting” were equal with 10.2% of respondents choosing each. The pattern exhibited by teachers (n=7) differs from those presented above. No respondents among this subgroup rated the content as “Very Interesting”. The majority of respondents (57.1%) rated the content as “Somewhat Interesting”, but only 14.3% found the content “Interesting”. Almost 30% of respondents rated the content “Not Interesting”. Table 7-5 presents the responses of all subpopulations. In conclusion, the responses of every subgroup *except* teachers exhibit a

similar pattern. “Interesting” was consistently the most frequently chosen response, and the totals of “Interesting” and “Very Interesting” account for over half of the responses in every subgroup except teachers. Teachers rated the content less interesting than all other subpopulations.

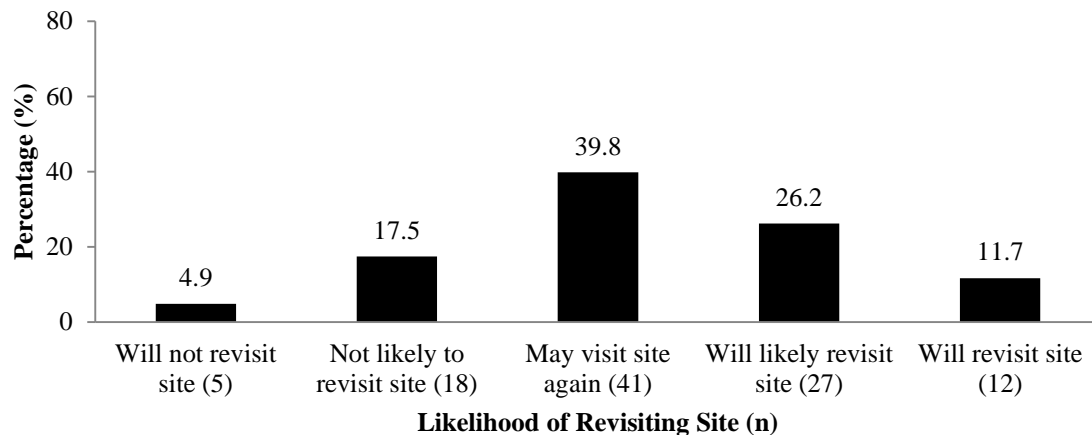
Table 7-5. Responses of all subpopulations to question 3: Rate the content of UM Archaeology on the following scale.

Subpopulation	Not interesting		Somewhat Interesting		Interesting		Very interesting	
	#	%	#	%	#	%	#	%
Total respondents (n=102)	4	3.9	32	31.4	53	52	13	12.8
Archaeologists (n=10)	0	0	3	30	6	60	1	10
Non-archaeologists (n=90)	4	4.4	28	31.1	47	52.2	11	12.2
Males (n=24)	1	4.2	8	33.3	11	45.8	4	16.7
Females (n=65)	3	4.6	19	29.2	36	55.4	7	10.8
Students (n=50)	0	0	20	40	23	46	7	14
Non-students (n=39)	4	10.3	8	20.5	23	59	4	10.3
Teachers (n=7)	2	28.6	4	57.1	1	14.3	0	0
Museum Professionals (n=10)	0	0	2	20	7	70	1	10

Question 5 – Are you likely to visit UM Archaeology in the future?

Users were asked to rate their likelihood of revisiting the site along the following scale: Will not visit site again, Not likely to visit site again, May visit site again, Will likely visit site again, Will visit site again. Respondents as a whole (n=103) were generally noncommittal, with “May visit site again” the most popular choice. Almost the same percentage of individuals indicated positively that they “will” or “will likely” visit the site again. Less than 20% of respondents are “not likely” to visit the site again; while less than 5% stated that they “will not” revisit the site (Fig. 7-8).

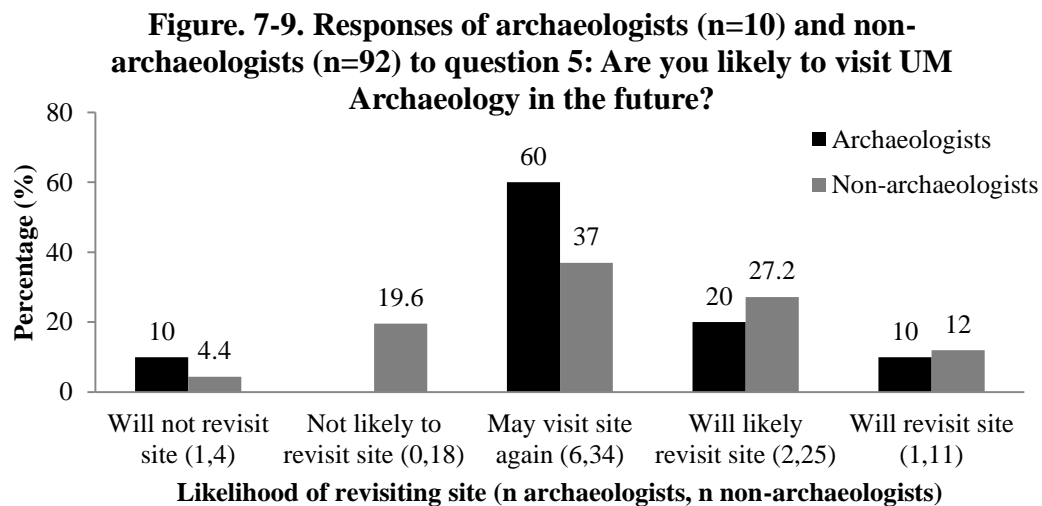
Fig. 7-8. Responses of total respondents (n=103) to question 5: Are you likely to visit UM Archaeology in the future?



In all subpopulations except teachers, the most popular response is “may visit site again”. Among archaeologists (n=10), 60% of respondents picked this choice. A total of 30% answered positively that they “will” or “will likely” revisit the site, while only one respondent indicated that they “will not” visit the site again. The responses of non-archaeologists (n=92) closely resemble those of the total respondent population. The most popular response was noncommittal (37%). A total of 39.5% of respondents indicated

positively their chances of revisiting the site; however almost 20% suggested that they are not likely to visit the site again. Three individuals (3.5%) “will not” revisit the site (Fig. 7-9).

Students (n=51) responded more positively than non-students (n=39), with over 40% of respondents indicating positively their chances of revisiting the site. Conversely, only a third of non-students indicated the same. Among students, slightly more than one third of respondents indicated that they “may” visit the site again, compared with over 40% of non-students. Approximately one quarter of students and non-students each identified their chances of revisiting the site negatively.

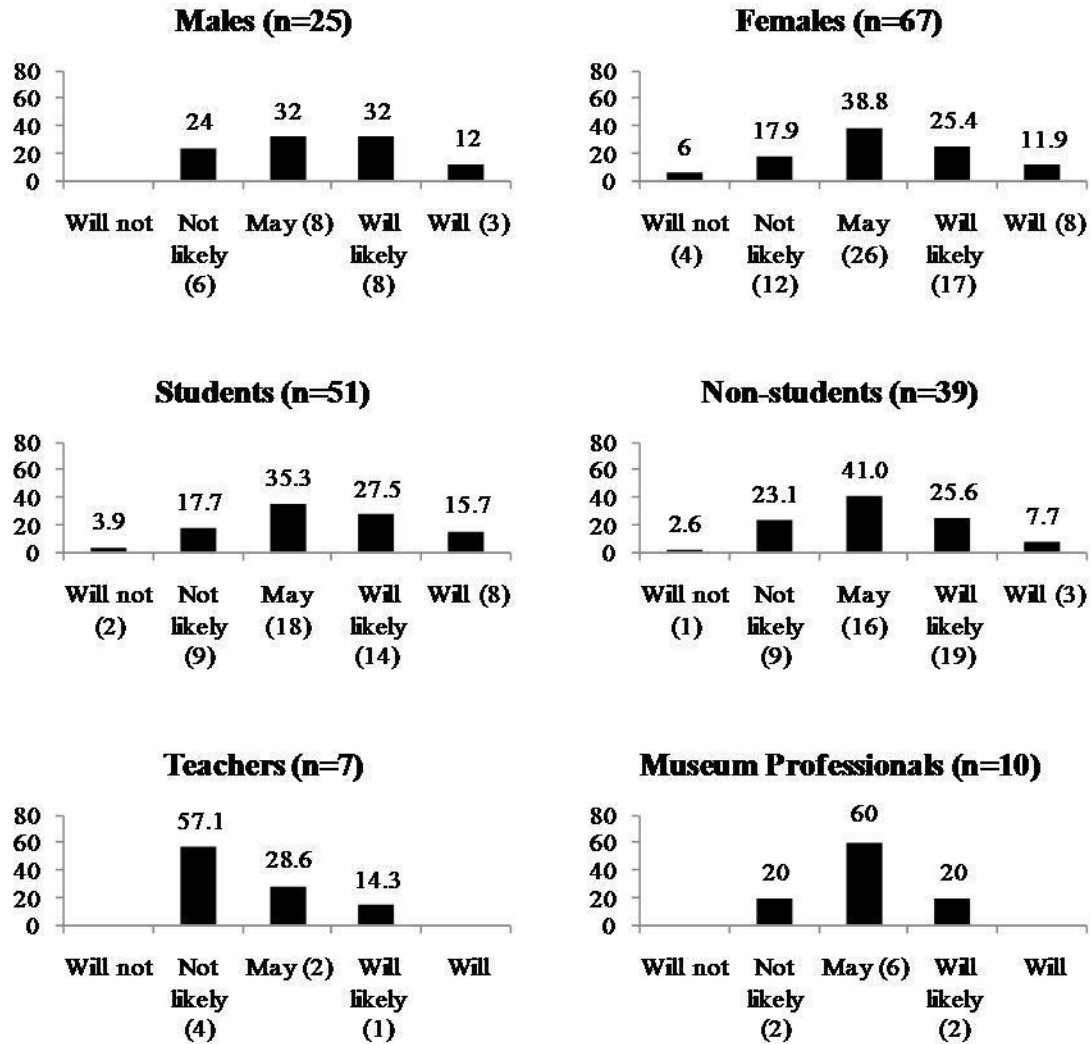


More male non-archaeologists (n=25) were optimistic about their chances of revisiting the site than female non-archaeologists (n=67). When both responses on the negative end of the scale are considered, the difference between genders is negligible. Four females, however, indicated that they “will not” visit the site again, while no males were willing to say never.

The responses of museum professionals (n=10) cluster in the middle of the scale, with no respondents indicating they will certainly, or will not, visit the site again. The majority of respondents indicated that they “May visit site again”, while equal numbers indicated that they will likely, and likely not, revisit the site. The majority of teacher respondents (n=7) replied negatively when asked about their chances of revisiting the site. Only one respondent was optimistic about their chances of revisiting the site. As with museum professionals, no teachers indicated that they will certainly, or will not, visit the site again (Fig. 7-10).

In sum, results are consistent among all subgroups *except* teachers. The most frequently-chosen response is “may visit site again”. When the positive responses (“Will likely visit site again” and “Will visit site again”) and negative responses (“Not likely to visit site again” and “Will not visit site again”) are totaled, most subgroups of respondents are positive about their chances of revisiting the site. Museum professionals (n=10) did not exhibit a clear preference as to whether they will revisit the site, while the majority of teachers (n=7) are unlikely to revisit UM Archaeology.

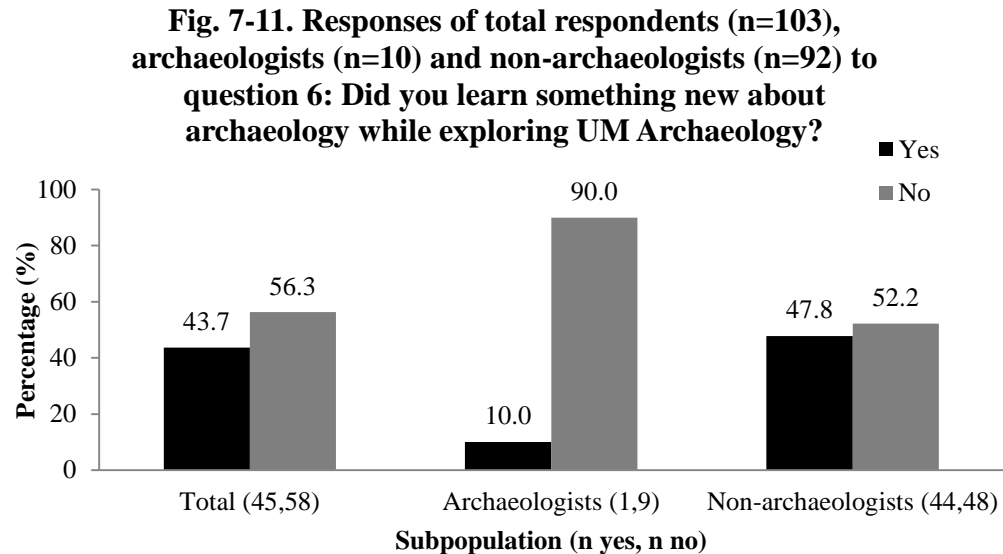
Fig. 7-10. Responses of subpopulations of non-archaeologists to question 5: Are you likely to visit UM Archaeology in the future? Percentage is plotted on the y-axis, with likelihood of revisiting the site (n) on the x-axis.



Question 6 – Did you learn something new about archaeology while exploring UM Archaeology? If yes, what was it?

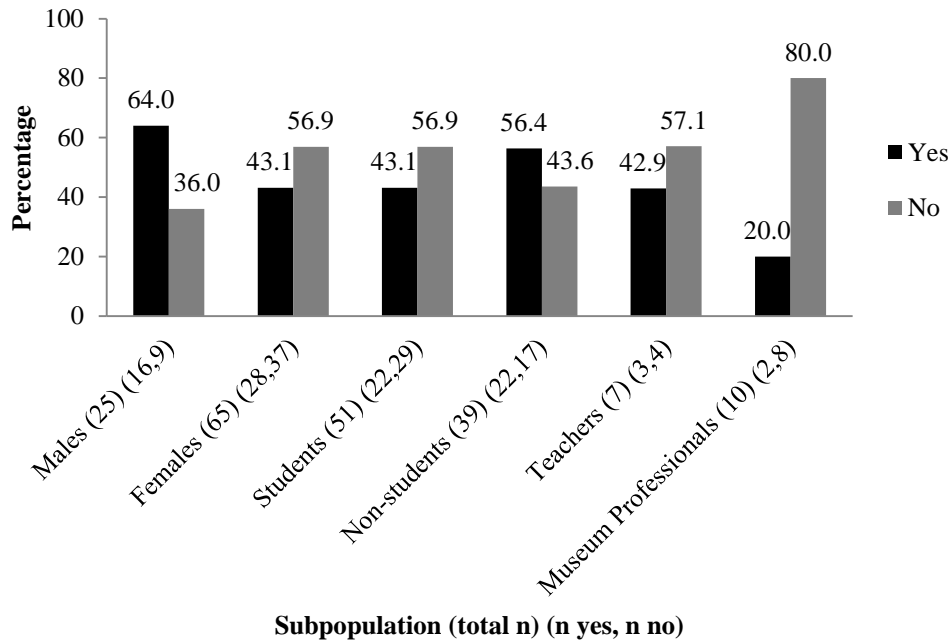
The majority among the total population of respondents (n=103) did not learn anything new; however over 40% indicated that they *did* learn something. Not surprisingly, among archaeologist respondents (n=10) the majority did not learn anything

new, while non-archaeologists (n=92) were split nearly evenly between learning something and not learning something (Fig. 7-11).



Responses from students and non-students exhibit opposing results. Less than half of student respondents (n=51) learned something new. Conversely, among non-students (n=39), over 55% *did* learn something. Responses of female non-archaeologists (n=65) resemble those of total respondents, with almost 57% not learning anything new. Male, non-archaeologists (n=25) learned the most among subgroups, with over 60% of respondents indicating that they learned something new about archaeology. The responses of museum professionals (n=10) most closely resemble those of archaeologists, with only 20% of respondents learning something new. Over half of teachers (n=7) indicated that they did not learn anything new (Fig. 7-12). When all subgroups are considered, the percentage of individuals who learned something about archaeology from the site ranges from 10 – 64%. Archaeologists, as expected, learned the least from the site, while male, non-archaeologists appear to have benefited the most.

Fig. 7-12. Responses of subpopulations of non-archaeologists to question 6: Did you learn something new about archaeology while exploring UM Archaeology?



Respondents who answered that they had learned something were asked to indicate what they had learned in a fill-in-the-blank box. As a whole, the respondent population replied 75.6% of the time. Archaeologists (0%) were least likely to respond, male, non-archaeologists filled in the box 87.5% of the time, and 100% of museum professionals who learned something answered this part of the question. Over 20% of respondents (n=7) mentioned categorization or terminology as something they learned (e.g. “What constitutes clothing e.g. buttons”), and two made positive remarks regarding the glossary. Three (8.8%) respondents remarked on the diversity of objects. Five individuals (14.7%) commented about the collections coming from Manitoba, saying they had learned something about Manitoba archaeology or artefacts specific to Manitoba. One respondent stated that they “...never considered that misc. aminoral [sic] bones were

collected as part of an archaeology dig.” The image associated with one record led one respondent to a collections care-related question: “I also wodnered [sic] about the ink labeling on the 1912 American coin, and what sort of inks are used that won’t affect the material.” The responses to this question suggest that respondents learned the most about terminology and classification of artefacts, and the diversity and amount of material found in Manitoba.

Question 8 – Did you search for something specific? If yes, what was it?

Over half of total respondents (n=104) stated that they did not search for anything specific. Not surprisingly, 70% of archaeologists (n=10) searched for something specific, while an almost equivalent percentage of non-archaeologists (n=94) did *not* (Fig. 7-13). In all subgroups of non-archaeologists, at least 60% of respondents did *not* search for something specific (Fig. 7-14). Thirty six respondents answered the second half of the question and indicated those materials for which they searched. Lithics (n=12), ceramics (n=10) and fauna (n=6) were mentioned most frequently as searched-for categories (with one individual searching for all three!), although respondents often described their searches with more specific terminology (e.g. “bison carpal bones”, “punctates”, “endblades”). Four individuals searched specifically for clothing, while three respondents searched each for arms and toys. Two of the respondents searching for toys indicated that they were looking because that is a category in which elementary school children would be interested. Responses to this question suggest that most of the time, respondents were not looking for specific categories when exploring the site. The proportion of respondents who did not search for something specific ranges from 60 – 71.4% among subgroups of non-archaeologists (n=94). Archaeologist (n=10) respondents were the one exception to

this generalization, as 70% of respondents searched for particular categories.

Fig. 7-13. Responses of total respondents (n=104), archaeologists (n=10) and non-archaeologists (n=94) to question 8: Did you search for something specific?

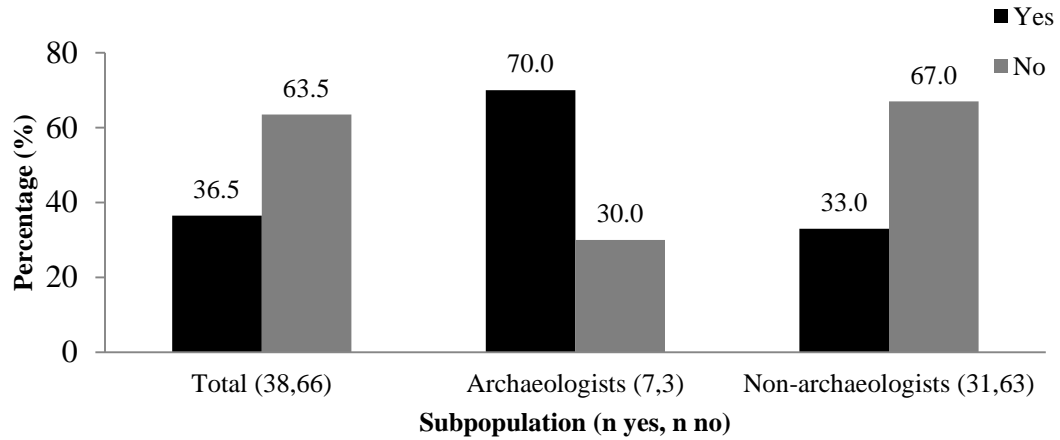
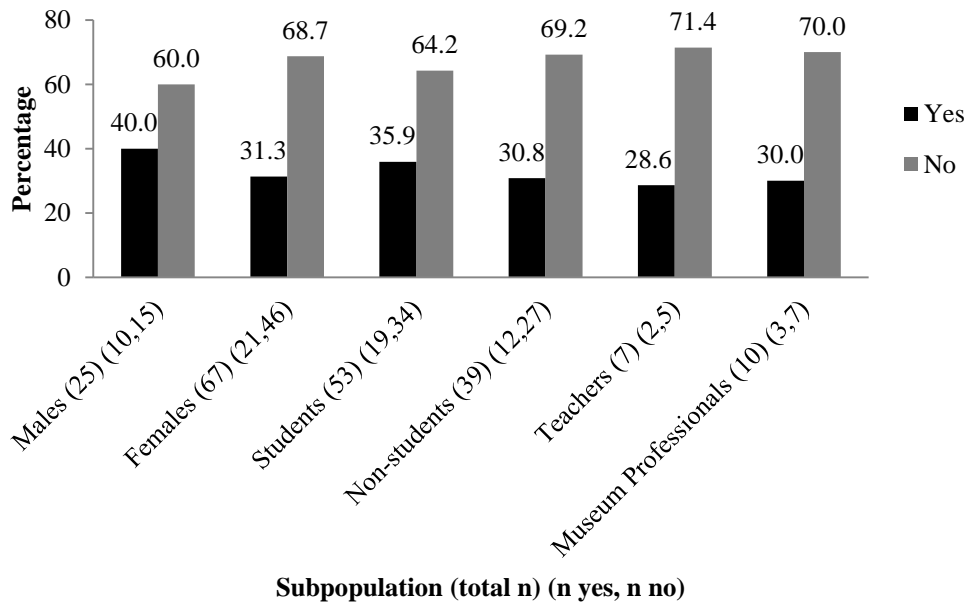


Fig. 7-14. Responses of subpopulations of non-archaeologists to question 8: Did you search for something specific?

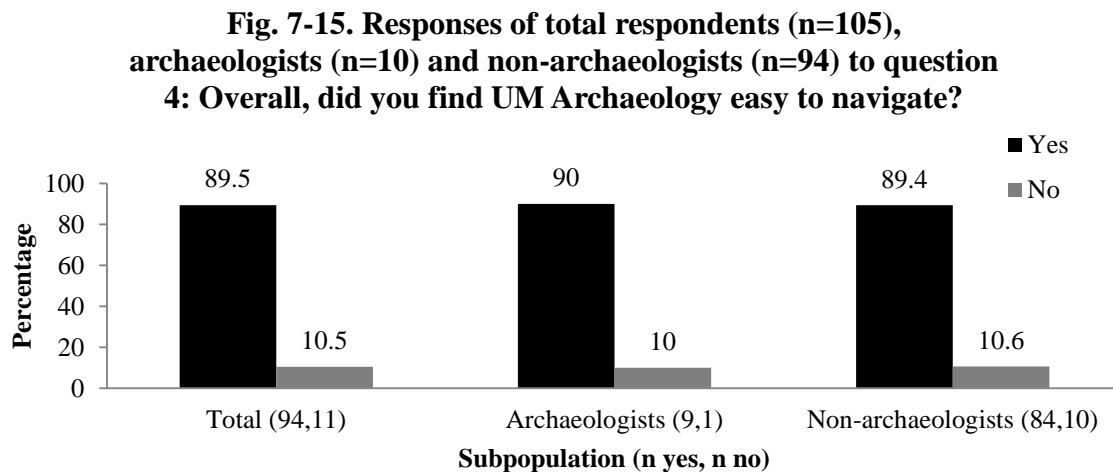


7.1.4 Survey responses - User impressions of the Website

Two questions asked users to evaluate the Website, as opposed to the archaeological content.

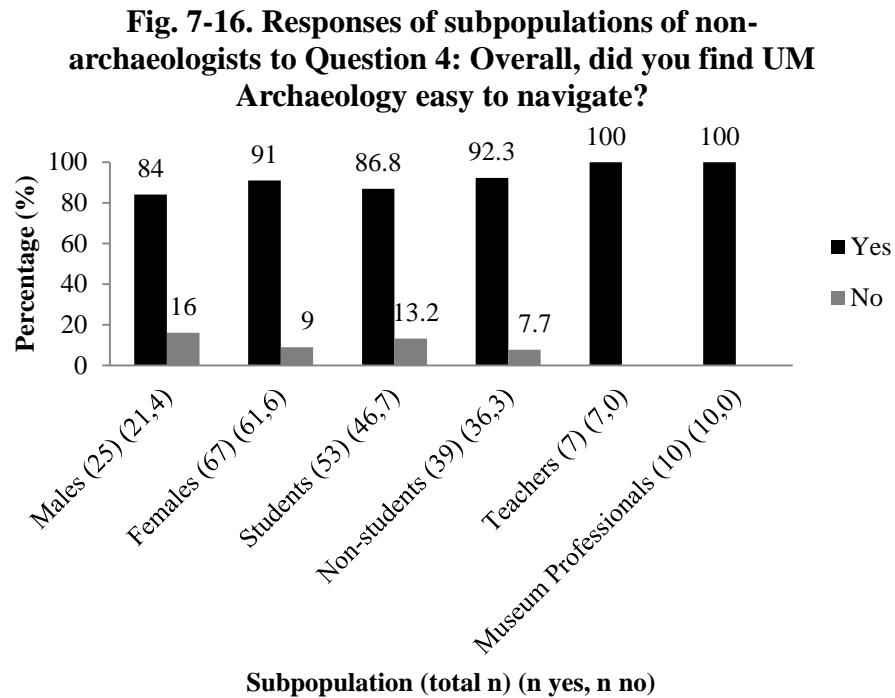
Question 4 – Overall did you find UM Archaeology easy to navigate?

The total respondent population (n=105) replied positively to this question, with around 90% of individuals indicating that the site was easy to navigate. Archaeologists (n=10) and non-archaeologists (n=94) both exhibited similar opinions to the entire respondent population, with the number of positive responses remaining around 90% (Fig. 7-15).



Female non-archaeologists (n=65) responded slightly more positively than the total population, with over 90% of respondents finding the site easily navigable; however only 84% of male non-archaeologists (n=25) rated the site easy to navigate. Students (n=53) responded less favourably to the navigability of the site than non-students (n=39).

Among museum professionals (n=10) and teachers (n=7), 100% of respondents rated the site easy to navigate (Fig. 7-16). These responses suggest that, in general, all subpopulations of users found the site easy to navigate, with proportions of positive responses ranging from 84 – 100%.



Respondents were invited to include additional comments, and 31.4% (n=33) of individuals did so. The question was drafted to solicit additional comments about the navigability of the site; however users took the opportunity to add comments about any aspect of the site. Five individuals (15.2%) suggested that different areas could benefit from additional classification and collapsing prior to seeking or displaying results. Users appeared to appreciate the fact that, when browsing, after clicking on “Category” (indicating that they would like to browse by the category field), they were taken to an additional listing of categories to help refine their search. Some users had difficulty with

the sheer length of the list of categories (which *was* anticipated because the field label Subcategory in the original spreadsheet was interpreted as an additional category during the data upload process). Despite those hurdles, users would like to see a similar set up for other fields, like Site and Location. In addition, browsing by fields that occurred in every record (e.g. Location) resulted in a listing of all of the records in the database arranged alphabetically (which resulted in over 800 pages of results). Users commented that this number of results per query is unmanageable.

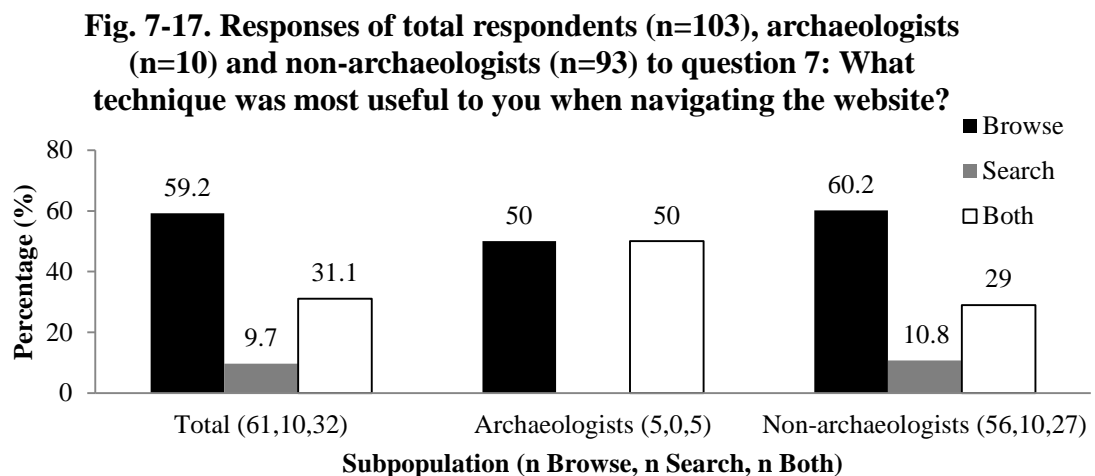
The issue of terminology was raised by two individuals (and more in responses to Question 7 and 8). They would like to see the search function modified in such a way that it recognizes commonly-used terms (e.g. arrowhead, pottery) for which users are likely to search, and takes them to the appropriate records (e.g. projectile point, ceramic) in the database. This issue is discussed further in section 8.2.1.

Four single responses are worth mentioning. One user suggested a link to a tutorial to give users an idea of what to expect and how to proceed before they are expected to successfully use the Website. Another respondent, a teacher, raised the issue of lack of context, asked how old an object was and where it was made, because “We need students to link the actual artifacts to the history at the time.” Two responses address the usability of the site for archaeologists and the general public: “I would have liked to see parts of the [site] organized differently to make the information presented on the site even easier to access for archaeologists.” and “If the Website is designed to increase public interest, I’m not sure it’s organized in a way that will accomplish that...too technical.” Comments like these are in the minority. Users provided numerous constructive suggestions for the improvement of the site in their free-form responses to

this question. The most frequently-mentioned complaint pertained to the display of browsing options and search results. Due to the size of the collection and the variety of categories by which one can browse, respondents indicated that they would benefit from a restructuring of some aspects of the site.

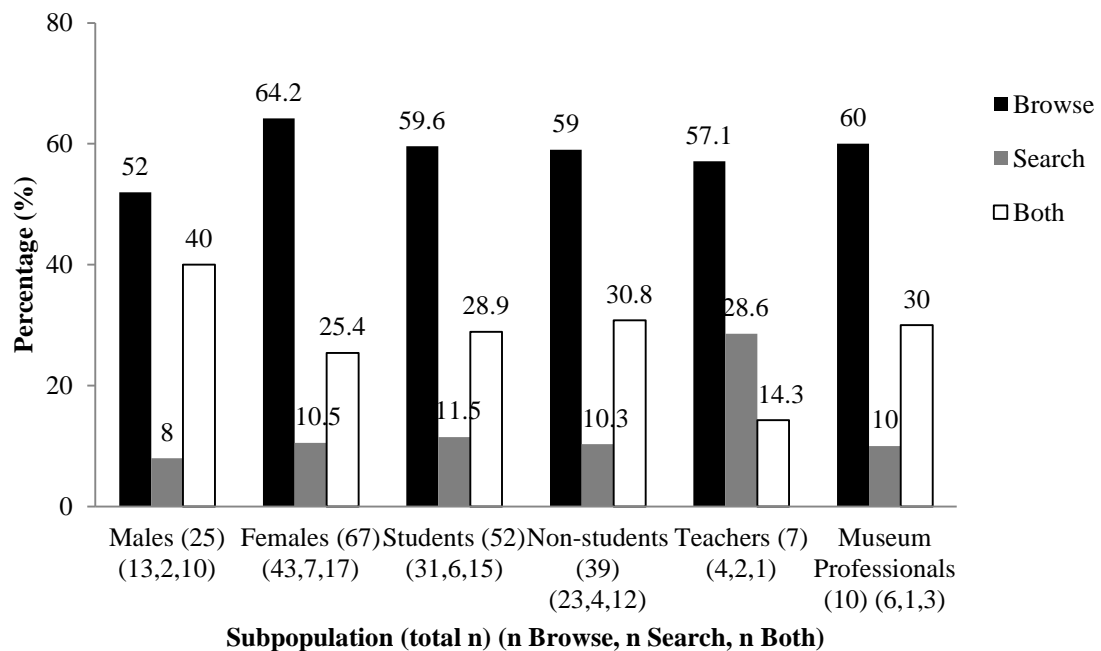
Question 7 – What technique was most useful to you when navigating the site?

Users were provided with three possible answers to this question: ‘Browse’, ‘Search’, or ‘I used both techniques equally’. The majority of total respondents (n=103), identified browsing as the most useful technique; however approximately one third of individuals used both techniques equally. Surprisingly, archaeologists (n=10) as a group did not find searching useful; one half favoured browsing, while the other half used both techniques equally. The responses of non-archaeologists (n=93) result in a pattern that more closely resembles that of the total respondent population, with approximately two thirds preferring to browse, approximately one third using both techniques equally, and the remaining few favouring the search technique (Fig. 7-17).



All but one subgroup of non-archaeologists exhibit a similar pattern to total respondents and non-archaeologists: the majority of participants favour browsing. Employing both techniques equally is the next most popular response, with searching consistently identified as the least preferred way of exploring the site. Among teachers (n=7), however, browsing remained the preferred technique, followed by searching (Fig. 7-18). These results suggest that searching was not a preferred way to navigate the site. Rather, respondents preferred to browse, or use a combination of both techniques.

Fig. 7-18. Responses of subpopulations of non-archaeologists to question 7: What technique was most useful to you when navigating the website?



Sixty-five (63.1%) of respondents added further comments explaining their choice of preferred technique. Among those users who preferred to search, two indicated that they had specific objects or categories in mind, and one simply found it “faster to search than browse.” Five individuals who preferred the Browse technique to navigate the site

found it helpful because they were new to, or did not know much about, archaeology. Ten respondents indicated that they were not visiting the site with any specific object in mind, and thus browsing allowed them to explore. A common criticism from those who preferred to browse was that the search terms they used did not produce any results.

Among respondents who replied that they used both techniques equally, four individuals indicated that they used Browse to explore or look for generalized information, and Search to then find specific items they had in mind, or were brought to mind while browsing. Two respondents replied that they used both techniques to see how they differed. The free-form responses support the multiple-choice replies in suggesting that browsing was the most useful technique, particularly for those who did not have specific objects in mind, or did not know a lot about archaeology. Browsing was also used when specific search terms did not produce results.

7.1.5 Survey responses - Qualitative feedback

The last question of the survey, before the demographic questions, invited users to provide any further comments they had about the site. Of the 107 individuals who began the survey, 47 (43.9%) included additional comments (see Appendix B for full text of all free form comments received). The comments can be discussed in the same broad categories as the multiple choice questions above: those addressing the archaeological information presented, and those dealing with the Website itself. In addition, a “general comments” category includes those comments that do not address any specific aspect of the site. Overall, 40.4% of responses were positive, while only two were negative,

including: “This site is not engaging at all.” The remaining responses can be classified as neutral, and were, in general, very constructive.

Five comments were general, positive comments about the project (with no further details provided). Respondents commented on the archaeological information presented in a number of ways. Seven respondents mentioned positively the fact that the site increases accessibility to archaeological collections. Approximately one third of respondents (31.9%; n=15) commented on the photographs: from “love the clarity of the images” and “needs higher resolution pictures” to “would like to see more images” and “is there a reason why so many pictures are missing?”. Three individuals mentioned that they would like to see the addition of dates to the records. The Narratives tab was referenced by four respondents as something that caught their attention. Five individuals indicated that they would have preferred to see more links within the records – to the glossary, to contextual information, and to functional descriptions of the artefacts.

Seven respondents addressed the site itself, with three individuals providing positive comments about the site’s layout and navigability. Searching options, the browse function and the display of search or browse results were concerns for the others.

One teacher indicated that a “travelling collection” of artefacts that could be brought to the classroom would be more useful, and another respondent who did not self-identify as a teacher responded positively that the site “gives a chance to apply concrete local examples of prehistory and history in the classroom”.

Two responses are being classified as “personal” based on the comments provided. The first: “I find it highly inappropriate and insulting for companies to

advertise on the pictures of the artefacts. Is it so they can profit off my heritage? I don't see anything on your site about involving or having any Aboriginal collaboration.” The second: “This site is very valuable in making archaeology accessible to everyone to learn about the local history and people. Personally, it has triggered a repatriation process for unprovenienced human remains (separate from these collections but connected to same digs) and that value cannot be expressed.”

In summary, user comments indicate that photographs and other images are very important, and that the addition of more of this type of content will enhance the user experience. The navigability of the site could be improved by a restructuring of some aspects, and increased interactivity between others. Finally, the personal comments (n=2) indicate a mixed reaction among identifiable First Nations visitors to the site.

7.2 Other feedback

Two additional mechanisms for providing feedback were provided to users: a feedback form through which anonymous comments could be submitted, and an e-mail address to which comments could be sent. No comments were submitted via the feedback form, and a single e-mail was received. The one e-mail was not commenting on UM Archaeology, but rather directing me to an online archaeology resource with which the sender was involved. One person left a comment on Facebook connected to the call for participants, indicating that they liked the featured artefact on the homepage. A single respondent replied directly to an e-mail request for research participation suggesting a number of Website-related improvements that would assist users.

7.3 User tracking

Google Analytics collected data about visitors to the site that provides additional numbers for consideration. During the study period, from 2 December 2010 to 31 January 2011, the site was visited 772 times. Among those 772 site visits, 73.2% (n=565) were first-time visitors to the site, while 26.8% (n=207) were return visits. Visitors living in 16 identified countries on five continents visited the site (Table 7-6).

Table 7-6. Countries in which visitors to UM Archaeology (n=772) were located.

Country	Number of visits	Percentage of total visits
Canada	691	89.5
United States	46	6
United Kingdom	11	1.4
Brazil	6	0.8
Japan	3	0.4
Russia	2	0.3
Germany	2	0.3
Denmark	2	0.3
Australia	1	0.1
Not Set ¹	1	0.1
Spain	1	0.1
Moldova	1	0.1
Hungary	1	0.1
New Zealand	1	0.1
Belgium	1	0.1
India	1	0.1
Mexico	1	0.1

¹Not Set means that Google cannot determine the visitor's location.

The vast majority of visitors (89.5%; n=691) were from Canada, with all but one province (New Brunswick) represented. The site was not visited by anyone living in any of the Canadian territories. Among Canadian visitors, 80% (n=553) lived in Winnipeg.

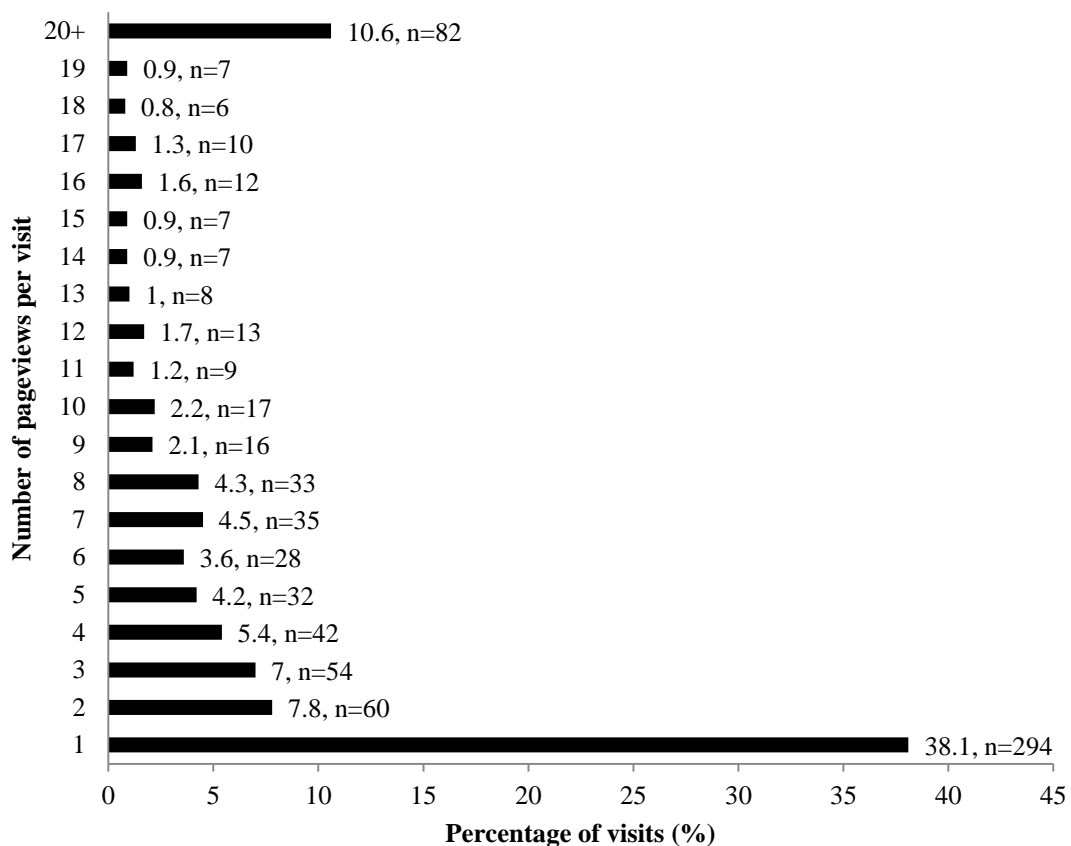
Users came to the site in one of three ways: direct traffic, via referring sites, or through search engines. Direct traffic was the most common way users found the site (64.1%; n=495). Referring sites (including Facebook, Streetprint and the Department of Anthropology) resulted in almost one third of site visits (30.3%; n=234). Search engines were the least popular way for visitors to find the site (5.6%; n=43); however these visitors represent the individuals who were not on the receiving end of a call for participants, and as a result are the “general public” who came to the site of their own accord. The keywords these visitors used to find the site indicate that they were searching for specific artefacts (“hollowware cup”, “shoulder sherds”), specific elements (“pelican humerus”, “catfish vertebra”) or general, local information (“Manitoba artefacts”). Search terms suggest that three users were specifically looking for this site (UM archaeology, UM streetprint archaeology, University of Manitoba Archaeology). Visitors to the site used a variety of different Web browsers; however the majority (98.3%; n=759) of users used one of four main browsers. Internet Explorer was the most commonly used browser, followed by Firefox, Safari and Chrome. Table 7-7 presents a complete list of Web browsers used by site visitors.

Table 7-7. Web browsers used by visitors to UM Archaeology (n=771).

Web Browser	#	%
Internet Explorer	283	36.7
Firefox	240	31.1
Safari	168	21.7
Chrome	68	8.8
Mozilla Compatible Agent	7	0.9
BlackBerry 9630	1	0.1
BlackBerry 8530	1	0.1
BlackBerry 9700	1	0.1
Netscape	1	0.1
Opera	1	0.1

Tracking the number of pageviews (defined as a view of a page on a site by a user) per visit indicates the depth of the visit (Fig. 7-19). Over one third of visits to the site consisted of a single pageview. Among visits with between one and six pageviews, number of visits is inversely related to pageviews. As pageviews continue to rise, however, a clear trend does not exist. The percentage of visits recording between 10 and 19 pageviews ranges from 0.8% and 2.2%. A jump in numbers is evident for over 20 pageviews, with 10.6% (n=82) of visits.

Fig. 7-19. Depth of visits to UM Archaeology (n=772) based on number of pageviews per visit.



Tracking the number of total pageviews per page indicates which content was viewed most often (and was, presumably, most popular). Table 7-8 presents the top ten

pages on the site, ranked by number of pageviews. The site's homepage was ranked highest, accounting for 18.9% (n=1202) of total pageviews. All of the tabs available on the homepage (Browse, Search, Narratives, News, About) appear in the top 10 most frequently viewed pages; Search, Browse and Narratives all rank in the top five.

Table 7-8. Most frequently viewed pages of UM Archaeology based on total number of pageviews.

Rank	Page	Number of pageviews	Percent total pageviews
1	Homepage	1202	18.9
2	Search Page	1059	16.6
3	Browse Page	767	12
4	Browse by Category	354	5.6
5	Narratives	211	3.3
6	Browse by Object Name	196	3.1
7	News	153	2.4
8	Search 2nd page	109	1.7
9	About	104	1.6
10	Browse by Location	67	1.1

7.4 Summary of results

When the above results are considered as a whole, interesting patterns emerge. I will first address the responses of survey respondents when asked about the archaeological information presented. The responses of survey respondents to questions about the Website will follow, including characteristics of the general population of site visitors.

In general, user interests cross all categories of artefacts; however, in some subpopulations (archaeologists and students), preferences are more strongly defined.

Most subpopulations rated the archaeological content of the Website as interesting, but only archaeologists generally searched for specific artefacts. Approximately 70% of respondents were satisfied with the information presented; however, more images or visual representations were repeatedly mentioned as a way to improve the site.

Respondents were generally non-committal about their chances of revisiting the site, but those who were optimistic about their chances of revisiting the site outnumbered those who were pessimistic about their chances of revisiting the site. The site was a successful educational resource, with almost 50% of non-archaeologists indicating they had learned something new about archaeology as a result of their visit. Every time space was provided for a textual answer, regardless of the question, at least one user brought up images or photographs. The fact that respondents took every opportunity to mention images, even when asked about something different (e.g. Overall, did you find UM Archaeology easy to navigate?; What technique was most useful to you when navigating the site?) underscores the importance of visual presentation. Another frequently-mentioned concern was a lack of context. Respondents phrased their interest in context variably, some wanting to know what the object was used for, others wanting links to the history of the area or the people, the relationship of artefacts within and between sites and simply “more contextual information”.

Users, in general, found the site easy to navigate, and found browsing a more useful technique than searching to find the materials for which they were looking. Despite this preference for browsing, respondents also indicated that there was room for improvement among the browse and search functions. Terminology was a major concern when searching: common terms were not recognized by the in-site search engine, and

users unfamiliar with the terminology used in the database had a difficult time generating results. Users appreciated when they were provided with starting points to facilitate their investigation (e.g. Browse tab, browse by category). When browsing by other fields (e.g. Location), the presentation of all records in the database, arranged by location, was viewed as impractical. Site visitors came from around the world, indicating that there is widespread interest in Canadian archaeology, and that an online resource is a successful avenue through which this audience can be reached. Although the above summary indicates that users were generally content with the archaeological information presented and the Website through which it was made available, there were a number of common suggestions for improvement.

The survey responses provided by users of UM Archaeology were generally positive about the archaeological information presented on the site and the Website itself. Concerns and criticisms were, for the most part, constructive in nature and will be used to improve this resource in the future.

Due to the small sample size of the total respondent population, and as a result, of some of the subpopulations, it is likely premature to make any definitive statements based on the survey results collected here. The results, however, do exhibit interesting patterns which will be discussed in detail in the following chapter.

8.0 Discussion of results

The objectives of this research were to perform public education and outreach by increasing accessibility to the archaeological collections housed at the University of Manitoba, and to assess the success of this online initiative by tracking visitors to the Website, and considering user responses to a survey about the site. In this chapter, I present an evaluation of the first objective in the context of data presented in chapter 7, I discuss user criticisms of the site, and I reflect on lessons learned during the completion of this project.

8.1 Evaluation of objectives

UNESCO describes cultural heritage as the common heritage of humanity, belonging to all people. Archaeologists study the material remains of this heritage, and as professionals they are ethically obliged to share the results of their research with the public. The primary way in which the public learns about archaeology is through museums, one of the major benefits of which is the ability to see ‘the real thing’. Universities in Canada are another source of archaeological collections; however, unless a given department has an affiliated museum, online public access to these collections does not exist. This thesis provided online public access to a small collection of the archaeological materials housed at the University of Manitoba. These collections are not mentioned on the department’s Website, nor displayed anywhere on campus, and consequently, access is generally limited to students whose professors use artefacts as teaching aids in a classroom setting. During the study period, the site received 772 visits by 591 unique visitors, living in 16 countries on five continents. Survey respondents self-

identified as belonging to 19 different professions (including students). Seven survey respondents acknowledged increased accessibility in their comments. These data show that general access to the collections has increased, meeting the first objective.

Beyond providing simple public access, this thesis was as an exercise in public outreach and education. Almost half of non-archaeologist survey respondents (44 individuals) indicated that they learned something new about archaeology as a result of visiting the site. These results were a pleasant surprise, based on the limited number of images, the characterization of the site by one respondent as “basically just a spreadsheet of data” and the contention of Srinivasan and colleagues (2010:758) that simply providing public access to records created by and for specialists does not guarantee that non-specialists will learn something. Respondents commented that they learned about classification of artefacts, the diversity, amount, and age of objects recovered in Manitoba, that miscellaneous animal bones are recovered, and that “Manitoba archaeology has a very diverse and interesting past”. Over 60% of non-archaeologists rated the content “Interesting” or “Very Interesting”, and almost 40% indicated that they will, or will likely, revisit the site.

Teachers, as a subpopulation, frequently provided responses the pattern of which differed from those of other subpopulations. The request for participation that was forwarded to teachers was different from the general requests for participation in that I asked teachers to use the Website in a classroom activity, and if that was not possible, to evaluate the site *as teachers*. This was the only subgroup that I asked to complete the survey in the context of their profession, which could explain the distinctive patterns produced by their responses.

Non-archaeologists identified a more diverse range of materials as “Interesting” in their survey responses than did archaeologists, and they identified categories that archaeologists did not. For example, the category personal was the most popular category among teachers and non-students, while it was not selected by a single archaeologist. The preferences of non-archaeologists compared to archaeologists suggest that it is important to present a diverse range of materials when targeting a public audience, because it is difficult to anticipate to what objects users will be drawn. The comments and numbers suggest that, as an education tool, the site was moderately successful; however, user feedback indicates that there is also room for improvement.

8.2 Room for improvement

User comments indicate that there are improvements that could be made regarding the archaeological content being presented and features of the Website itself.

8.2.1 Content

Context

The responses of survey participants suggest that the context I thought was provided to users via the Website was not perceived as such. The site records that were created for the Website, for example, contained information taken from site inventory forms, and included interpretations of the sites, approximate dates, the name of the primary investigator, a map showing approximate site location, a summary of collections from the site and bibliographic references. Based on their comments, one respondent viewed at least one of the site records; however, many more bemoaned the lack of certain

information (e.g. name of primary investigator, references to publications, interpretation of site, artefacts found nearby a given object, date). This information *was* present, but not with each individual artefact record. Comments indicate that the majority of users did not find this information, and would like to have seen it. If simply photos and labels are presented without context in Web accessible databases there is a risk of returning to cabinet of curiosities-style presentations which are not satisfying for users (Lock 2003:12). I thought I had provided context for users; however, the results indicate that the context was not explicit enough, or easily discoverable.

A similar situation arose with the glossary, available via a link on the site's homepage. Five survey respondents commented on the glossary, indicating that they had found it; however, one stated, "If I hadn't known there was a glossary, I wouldn't have known where to look up the words." It is unclear whether they knew of the glossary through discussions with me, or simply noticed it on the homepage. Users who found the glossary were generally positive about its existence and content; however, a greater number of respondents indicated a need for the sort of information found in the glossary (definition, function of objects) suggesting that they did not know of its existence. I decided against adding a 'Common Name' field to the artefact records for a number of reasons. Personal experience searching the online databases of various museums indicated that in general, museums do not follow this practice. For example, when I searched for "arrowhead", the only time results were generated was when the artefact had actually been catalogued as an arrowhead. Projectile points did not appear in the search results. While users of UM Archaeology may have been frustrated by this, many indicated that one of the things they learned about archaeology by using the site was the

categorization and terminology that archaeologists use. I stand by the decision to use scientific terminology, but would consider making the glossary more prominent and interactive to respond to user criticisms.

Narratives

User comments and visitor statistics indicate that the Narratives tab (or narratives in general) was preferred content, with respondents disappointed at the lack of subject matter presented in that section of the Website. The Narratives tab allows for additional stories and content (images, sound files, etc.) that are not necessarily connected to an artefact record. This section was added to the site (and all Streetprint sites) with no advance warning late in the research process, which precluded the addition of any content. This was originally interpreted as a negative situation, providing users with the impression that the site was “incomplete” (as noted by one respondent). It does, however, provide direction as to the type of content in which a public audience is interested, and it offers an outlet through which the contextual information that survey respondents indicated was lacking could be presented. Additionally, it raises the possibility of future community collaboration, with the potential for sharing community-produced narratives. Sharing narratives produced by variable sources would contribute to the multivocality of the site (the current content is produced by a consulting company and graduate student) and likely increase the appeal of the site among a diverse audience.

Images

It is evident that images, or visual representations of some kind, are very important to the public when it comes to an Internet application that presents

archaeological information (or any information). This is likely why CHIN's Artefacts Canada (where not all records have attached images) is not advertised as a public research tool, while the Virtual Museum of Canada Image Gallery (which contains records from Artefacts Canada that include images) is. Interestingly, among archaeologist respondents, images are still a concern, although statements about photographs are not as pervasive in archaeologist comments as they are in the comments of non-archaeologists. Archaeologists and non-archaeologists mentioned the quality of images ("improve images", "Needs higher resolution pictures"), though the majority of non-archaeologists were less concerned with the quality, and simply wanted more images. As discussed in chapter 6, the quality of the images was adequate for on-screen viewing, but not at a resolution that would encourage unauthorized printing and use. Additionally, the number of photographs included in the site was restricted by limited collections access. In the future, I expect that additional images will be added to the site.

An image that stated "No image available" was added to each record for which a photograph of the artefact in question was not available. I employed this strategy based on personal experience with online databases. When an image does not appear, I frequently wonder whether an image actually exists, or if there is a problem with the Website or my Internet connection. Adding a "No image available" graphic to these records was an attempt to anticipate, and respond to, similar user questions. This strategy, however, does not appear to have worked as I had hoped. One user said to me informally after visiting the site "Your site's not working. All it says is no image available." In addition, survey respondents commented on the information available on the homepage, which indicates the number of records, and the number of images present: "total

artifact/images on home page led me to believe there would be more” and “a lot of “images not available” despite claim on front page that said there were over 8000”. The problem is that the “No image available” file was saved as a .jpg, which the computer recognizes as an image. Thus, when the site calculates total images, all of the “No image available” images are included in the total count. This is obviously an issue that is very important to users and needs to be addressed in the future. The simplest way to address it will be to produce more images of the objects in the collection (ideally, all of them). And while it is daunting to look at a storage space full of collections and think about photographing everything, it is obviously important to the public accessibility of these collections. In addition, it provides a visual record of the objects in the collection in case of damage or destruction. The fire that occurred in the Duff Roblin Building during the completion of this project indicates that damage to collections is a very real possibility. The photographic process could also be made less overwhelming in the future if it is implemented from the beginning, say, as objects or groups of objects are catalogued.

User feedback suggests that the choice that was made to photograph all of the objects in the boxes that were removed from storage, as opposed to simply the attractive, whole artefacts, was justified. When only the visually appealing and/or complete artefacts are presented to the public, it could be argued that a skewed version is being promoted of what it is that archaeologists recover and on what they base their interpretations of the past. It could also be argued that picking and choosing what artefacts to present is in opposition to the ideals of professional transparency. In addition, if only complete objects are presented, those to which the public can relate and the use of which is obvious (e.g. a spoon), the idea that the past is self-evident could be unwittingly advanced. The unbiased

presentation of all artefacts contributed to the fact that almost half of survey respondents learned something new from the site. The quantity and diversity of objects was frequently mentioned as newfound knowledge, something that would likely not have been possible with the presentation of an abbreviated selection of objects.

Finally, one survey respondent voiced the concern that “companies [were] advertis[ing] on the pictures of the artefacts.” Assuming that this individual is referring to the copyright statement applied to all images, I would respond that, working within an academic framework, it was necessary to address copyright of the images and material presented on the Website. The statements on the images and contained in the “About” tab in no way imply ownership of the objects in question. Rather, the statement is an acknowledgement of who created the images in question, not an advertising tool.

8.2.2 The Website

Survey responses indicate that, while the site was generally easy to navigate, there are some aspects of it that could benefit from additional modifications. Browsing and searching were the two functions provided through which users could delve into the database. I suspected that browsing would be more beneficial for non-archaeologist users who might not be familiar with the appropriate terminology, while archaeologists would be able to search directly for what they wished to see. This hypothesis was supported by the survey responses, to some extent. Browsing was preferred by the majority of non-archaeologists; however no archaeologists preferred the search function, which was surprising. Non-archaeologists listed terminology-related issues as their main reason for having trouble with the search function; however similar issues were mentioned by one

of the archaeologist respondents. Based on personal experience, I would suggest this is a common complaint with searchable online databases of archaeological materials. It is also possible that some of the materials for which users were searching were not actually present in the Grand Rapids Survey collection. For instance, one user mentioned botanical remains multiple times in their survey responses. If a certain material is not physically present in the collection, it will not be in the database. This is another situation that supports placing everything online, and not simply the aesthetically pleasing objects. If the author of the Website is frank about placing everything online, it limits the opportunity for criticism about materials being 'hidden', and should hopefully reduce the need for users to question whether a given class of material was recovered at a given site.

It was generally agreed among users that the browse function was more useful than the search function. Comments submitted with survey responses, as well as site visitor data demonstrate that browsing by category was a preferred way to explore the site; however, I would propose an abbreviated category list, with subcategories (as identified in the original spreadsheet) removed and placed in their own field as was originally intended. Users felt that a similar set up to browsing by category (in which the user is taken to another menu to choose which category they wish to search by) could be beneficial to browsing by other parameters such as site and location. Drop-down menus were suggested multiple times as a device that could be helpful with the long list of browsing options, and I think a drop-down menu attached to the category, and sub-category boxes on a revamped search page would assist users.

8.3 Issues confronted and lessons learned

A number of hurdles were encountered during the completion of this thesis. Originally, I wanted to share the entire Grand Rapids Survey collection online; artefacts, maps, unpublished reports, wall profiles and black and white photos of the excavation. The collection is a significant archive of early archaeology in Manitoba, and sharing the entire collection would provide users with a further glimpse into the field of archaeology. Unfortunately, no one was able to tell me unequivocally to whom copyright of the documents and images produced during the original excavation and analysis belonged. Without knowing from whom to seek permission to reproduce the documents and images, I was not able, in good conscience, to republish this material as part of the Website. The solution I decided upon was to list bibliographic references as part of the site record for each site, and to include mention of the other archival material in the “Summary of Collection” field in each site record. This is a potential problem for other institutions in the process of digitizing their collections, particularly when the materials were collected a long time ago, and the primary investigator is deceased. If they do not already do so, it would be important for institutions accepting collections today to have a signed statement of copyright (or transfer of copyright) at the point of donation.

The Website, and the modifications that were necessary, were completed by a team of programmers and designers at the University of Alberta’s CRC Studio. This was a beneficial collaboration, as the Studio provided the technological infrastructure and know-how to give rise to the modifications that were necessary to make their Streetprint framework compatible with archaeological collections. Streetprint was originally developed to work with documents, and its reliance on visual impressions, in light of

survey feedback, makes it an ideal platform through which to present archaeological materials. One of the most beneficial aspects about Streetprint is that information can be shared, added, deleted and edited in real time. Thus, when I read something in the feedback that I could address during the study period, (e.g. “Why is the narratives section empty? If you are waiting on additional info for that section, you should put up a little paragraph explaining what the section will include in the future”), I was able to act on it immediately to hopefully stem similar criticisms in the future. In addition, if someone raised a concern about a given artefact being published, I could unpublish it (as with the pipes discussed in section 6.4). User tracking data indicate that it was beneficial to insist that the site be modified in such a way that it display properly with Internet Explorer, as it was the Web browser most frequently used by visitors to the site. Collaborating with people in another city, via e-mail, who had other projects in progress, was at times challenging; however, the end result is a resource that, with a few adjustments, could end up being very useful. Feedback about the site in its current state helped provide lessons for future projects of this nature, or improvements that could benefit the current project.

User feedback shows that non-archaeologists do find archaeology interesting, but photographs of the objects are a requirement of an engaging online resource. Users want information to be linked together so that they do not have to look for it. Although contextual information, definitions, dates, and bibliographic references were present in the site, they were not linked to artefact records, leading users to believe this information was not present, and telling me that they did not make an effort to search for it. Finally, it is important to be explicit. Many people will not read the majority of words on a webpage (Krug 2006:23; Nielsen 1997); however, one respondent commented that there was no

indication anywhere on the site of community consultation or collaboration. This suggests that if a topic is important to a user, they will seek until they find, or do not find, the answers for which they are searching. I had consulted the community, but without an explicit statement to that effect on the site, this user assumed that I made no such effort. The results and lessons learned discussed in this chapter are applied to conclusions and directions for future research in the following chapter.

9.0 Conclusions and future directions

9.1 Summary and conclusions

The product of this thesis meets professional ethical requirements and the principles of international recommendations and conventions. It also provides users with the open access to information that a multivocal interpretation of the site assemblages requires. The two opposing First Nations responses reveal a rich and diverse community opinion about archaeological practice and interpretation, and the number of visitors from different countries around the world suggests a keen interest in the rich archaeological heritage of Manitoba.

This thesis supports the findings of other survey-based studies that non-archaeologists find archaeology interesting. The results suggest that members of the public can learn about archaeology from an online database, and do not *require* flashy, non-specialist publications. They do, however, appreciate colour photos and a basic contextual framework to be associated with a given artefact. It is important to present a variety of information, because it is difficult to predict in what the general public will be interested. Online presentation has been shown to be a valid way to increase access to collections when physical display is not an option. Examination of site visits since the end of the study period further support this assertion.

UM Archaeology continues to attract visitors from around the world. The number of hits has decreased since the study period; however, the way in which users are finding the site has changed. In the post-study period, half of visitors (n=66) are coming to the site via a search engine using search terms like “pelican humerus”, “rim sherd”, “beaver

femur” and “prairies projectile points”. This contrasts with the study period, during which time the majority of visitors were coming to the site via a direct link that I had provided. These numbers suggest that Internet users are finding and using the site without my prompting. I suspect that an improved site, achieved by incorporating comments and suggestions from survey respondents, would result in increased visitation.

9.2 Evaluation

Upon reflection, there are a number of changes I would make if given a chance to redo this thesis. A longer study period would presumably lead to an increased number of survey respondents, and consequently more comprehensive results. A lengthened study period could also lead to increased teacher and classroom involvement. It is possible that teachers were unable to use the Website in a classroom activity simply based on the timing of the study period. I would explore the possibility of linking content within the site (e.g. terminology and glossary, site records to artefact records), to reduce the amount of work required by the user, and increase the chances of them finding the information in which they were interested. A collection with a clear-cut copyright trail would be valuable to enable the sharing of archival materials along with the artefact collections. I was not able to ascertain to whom copyright of the Grand Rapids Survey archival materials belonged, and thus did not include these documents as part of UM Archaeology; consequently I was unable to collect related user feedback.

On a related note, I *was* aware to whom copyright of the images belonged, as they were created by me, or were produced as part of a recently-completed report. As noted in section 6.2, copyright statements applied to online collections of images and information

are commonplace among museums in Canada. If the department pursues expanded online access to collections in the future, it would be useful to explore the idea of a Creative Commons license for the materials presented. Creative Commons is an organization that develops licensing alternatives to traditional copyright (Creative Commons 2011a). The Internet is a medium through which universal access to scientific and cultural content can be provided; however, copyright law can impede these advancements (Creative Commons 2011b). Creative Commons licenses are legal instruments that allow content creators to apply a “some rights reserved” philosophy to their content, as opposed to the “all rights reserved” stance of copyright law (Creative Commons 2011b). This licensing strategy *has* been used in the archaeological and anthropological communities: the creators of the Çatalhöyük and Reciprocal Research Network (see below) Websites employ Creative Commons licenses rather than traditional copyright statements. Making the decision to use a Creative Commons license instead of applying traditional copyright to collections housed in the Department of Anthropology is a choice that would have to be addressed at the departmental level, and standardized by policy, and thus was beyond the scope of this thesis. If the Department does choose to take this approach in the future, it would be necessary to discuss the development with all of the content creators, and any associated communities. In the context of the collection used in this thesis, it would be important to discuss any changes with Misipawistik Cree Nation and Northern Lights Heritage Services, Inc. before proceeding. One might profitably consult Brown (1998) for a discussion of intellectual property and copyright concerns pertaining to anthropology generally, and Hollowell and Nicholas (2008), Nicholas (2009), Nicholas and Bannister (2004) and Nicholas and Hollowell (2006) for issues relevant to archaeology specifically.

At present, there is no way for users to post comments on the site, and I remain the sole editor. This situation is congruent with that seen in most museum catalogues: while the benefits of a multivocal approach are promoted in the spheres of exhibition and interpretation, the catalogue remains the domain of academic experts (Srinivasan et al. 2009:267). It is possible to assign editor privileges to additional people, who could then add, edit and delete content from the site; however, I would be hesitant to provide this level of access to any more than a few well-chosen individuals. Modifying the spreadsheet to the point where data were consistent and appropriately structured for this Web presentation was a time-consuming and tedious task which could be intentionally or unintentionally spoiled by anyone with editor-level access. Staff at the Museum of Archaeology and Anthropology at Cambridge University have provided research collaborators, which include source communities, with the ability to login to the online collection catalogue (Srinivasan et al. 2009:274). Catalogue entries include the author and date entered, so that the contributor retains intellectual rights over their entry (Srinivasan et al. 2009:274). Thus, every individual who accesses the online catalogue does not have the ability to change the records, but legitimate researchers who have collaborated or are collaborating with the museum do have this ability.

The Reciprocal Research Network (RRN) (<http://www.rrn.pilot.org>) is a Canadian example of an initiative with similar components. The RRN is a joint project of the Musqueam Indian Band, the Stó:lō Nation/Tribal Council, the U'mista Cultural Society and the University of British Columbia Museum of Anthropology (RRN 2011). Objects of Northwest Coast cultural heritage housed in locally-, nationally- and internationally-based institutions are presented in an online space for collaborative research by

“communities, cultural institutions and researchers” (RRN 2011). Viewing and participating in many of the interactive features of the site (e.g. creating projects, asking questions, starting or participating in discussions, viewing all of the objects) are restricted to registered users who have requested and been granted accounts. Thus, the two above examples do not allow completely open public access or participation; however they do demonstrate how the definition of ‘expert’ is expanding, and how multiple interpretations and sources of knowledge are becoming accepted. In the context of the current project, additional editors would certainly be a consideration in the event of any community-based projects, such as those discussed in section 9.3.

Another option is to work with the developers to add spaces for user comments with each narrative. Yet, given the current political climate, I would proceed tentatively in this direction, lest a well-intended means for sharing multivocal interpretations of the past degenerate into prejudiced name-calling. An associated blog or discussion forum are two other possibilities for permitting public comments on the material, interpretations and any future narratives; although these may not be the best options. A discussion forum which was intended to increase public participation and questioning of the investigators and their interpretations, included as part of a Website for excavations at the Levi Jordan plantation in Texas, generated lacklustre results: forum participation was minimal and those who did participate or contact the investigators seemed unwilling to question their authority (McDavid 2004:170,176). Additionally, participants frequently posted comments about unrelated topics. Investigators at Çatalhöyük, in an effort to stem unrelated discussions in their online discussion forum, introduced two fora: one moderated and one unmoderated (McDavid 2004:171). One can imagine that the time

commitment required to moderate a discussion forum would be considerable. In fact, McDavid (2004:176) questions whether most archaeologists would be willing (or expected) to invest the amount of time that she herself spent corresponding via e-mail with the public in similar communication activities. It has been suggested that the most beneficial way for archaeologists to engage in discourse with a public audience online is to participate in well-established and active discipline-related discussion forums, like that affiliated with the About.com archaeology directory (McDavid 2004:172,174). A blog or forum hosted at a different URL could defeat the purpose of UM Archaeology, by directing users away from the archaeological content. Directing users to a discussion forum affiliated with a discipline-related Website would afford users the opportunity to voice their opinions and interpretations, while still keeping them in an online environment filled with archaeological content. Due to the nature of this project (an MA thesis), it would not have been practical to engage in a discussion forum via UM Archaeology based on the time commitment required for sustained discourse, and the abbreviated study period. If, however, the University of Manitoba pursues online access to campus-curated archaeological collections in the future, facilitating user comments and/or discussion in some form is a topic that will need to be confronted. Thus, while the relevance and strength of multivocal interpretations of the past are here recognized, UM Archaeology is not, at present, contributing to the presentation of multivocal interpretations of the past. It does, however, provide the raw information necessary to permit individuals to interpret the past for themselves.

This thesis has succeeded at increasing access to archaeological collections housed at the University of Manitoba. A small minority of survey respondents self-

identified as archaeologists, meaning that the majority were not archaeologists, suggesting that the project's role as a public outreach and education exercise was also successful. While the Website is not at this time a truly open forum for communication and discussion, access to archaeologically recovered materials, which the Website provides, is a first step to multivocal interpretations of the past. Survey responses indicate that non-specialists find the results of archaeological research, as presented on UM Archaeology, interesting, and can learn something from Web presentations of this nature.

9.3 Directions for future research

Users were surprised at the quantity, diversity and age of materials presented on the site, yet only five sites from the same general location in the province were represented. The presentation of recoveries from more sites around the province could help foster an even greater appreciation and understanding of Manitoba's archaeological heritage. In the immediate future, I would like to see photos uploaded to every record in the database, addressing users' primary concern. In the more distant future, it would be worthwhile to explore the possibility of community collaboration and participation surrounding the Narratives section of the site. It would be a way to present multivocal interpretations of the past, and to involve a wider community in the study and presentation of the material. Additionally, adding content produced by contemporary communities could help address the criticism that presentations of the past frequently present traditional societies as vanished or maintaining the lifestyles of their ancestors from whom the objects in question originated (Simpson 2001:35). This section of the site is already built-in and simply waiting for content, and user comments suggest that the

sort of content that could be added through the Narratives tab would increase the appeal and utility of the site.

In conclusion, this thesis has successfully published a portion of the University of Manitoba's archaeological collections online for a public audience to access. Among Canadian universities with archaeological collections, but without museums, this is a unique occurrence. UM Archaeology is not a completed project; rather, it is a work in progress that can be continually updated based on user feedback, existing collections, new collaborations and the latest departmental research. This new public accessibility meets public education mandates as outlined in international conventions and recommendations, and professional codes of ethics. Finally, the collection of user feedback in the form of an online survey has resulted in a suite of useful information regarding content and design of online presentations for a public audience.

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Appendix A. Full text of requests for research participation.

Full text of request for research participation sent via e-mail to members of the University of Manitoba Department of Anthropology, friends, family, co-workers, and mailing lists of organizations willing to forward the request.

Subject line: University of Manitoba/UM archaeological collections available online – Request for research participation

My name is Ashleigh Czyrnyj and I am a Master's student in the Department of Anthropology at the University of Manitoba. My thesis research studies the public availability of archaeological information in Canada. An online database which presents a subset of the archaeological collections housed at the University of Manitoba has been completed and is now available at <http://umarchaeology.streetprint.org>.

Your help evaluating this resource would be much appreciated. Three options for providing feedback are presented on the site's homepage. There is an e-mail address through which you can send comments directly to me. Additionally, you can submit anonymous comments through a feedback form, or complete a short (approx. 10 minute) survey.

Thank you in advance for your participation.

Researcher:
Ashleigh Czyrnyj
Department of Anthropology
435 Fletcher Argue Building
University of Manitoba
Winnipeg, MB R3T 5V5
Ph: XXX-XXX-XXXX

Supervisor:
Dr. Gregory Monks
Department of Anthropology
435 Fletcher Argue Building
University of Manitoba
Winnipeg, MB R3T 5V5
Ph: XXX-XXX-XXXX

This research has been approved by the Joint-Faculty Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Secretariat at XXX-XXXX, or e-mail
XXXXXXXXXXXXXXXXXXXXXXXXXXXX.

Full text of request for research participation that appeared as a note on the author's Facebook profile page.

Title of note: University of Manitoba archaeological collections available online

My Master's thesis research explores the public availability of archaeological information in Canada. To increase public accessibility to the archaeological collections housed at the Department of Anthropology, University of Manitoba, a Web-accessible database which presents a subset of these collections has been completed and is now available at <http://umarchaeology.streetprint.org/>.

Your help evaluating this resource would be much appreciated. I am interested in feedback from everyone - non-archaeologists who happen to have an interest in the past, anthropology students, practicing archaeologists, high school students, and everyone in between - all of your opinions are valuable.

Three options for providing feedback are presented on the site's homepage. There is an e-mail address through which you can send comments directly to me. Additionally, you can submit anonymous comments through a feedback form, or complete a short (approx. 10 minute) survey.

Thank you in advance for your participation.

Researcher:

Ashleigh Czyrnyj

Department of Anthropology, 435 Fletcher Argue Building, University of Manitoba,
Winnipeg, MB R3T 5V5

Ph: XXX-XXX-XXXX

Supervisor:

Dr. Gregory Monks

Department of Anthropology, 435 Fletcher Argue Building, University of Manitoba,
Winnipeg, MB R3T 5V5

Ph: XXX-XXX-XXXX

This research has been approved by the Joint-Faculty Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons, or the Human Ethics Secretariat at XXX-XXX-XXXX, or e-mail
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX.

Full text of request for research participation sent via e-mail to school divisions to forward to teachers.

Subject line: University of Manitoba archaeological collections now online – Request for research participation.

My name is Ashleigh Czyrnyj and I am currently a Masters student in the Department of Anthropology at the University of Manitoba. My thesis research is entitled "Access to Information: A Web-based model for Canadian archaeology", and explores how archaeological data in Canada can be made available to a wider audience than at present (the intended audience includes teachers and students). A database which contains information about a subset of the archaeological collections housed at the University of Manitoba has been completed as is now available online at <http://umarchaeology.streetprint.org>.

A review of the K-12 Social Studies curricula suggests that archaeological materials and information could be incorporated at a number of levels.

At the Grade 4 level, Manitoba, Canada and the North: Places and Stories (particularly Cluster 4: History of Manitoba).

At the Grade 5 level, People and Stories of Canada to 1867 (particularly Cluster 1: First Peoples, Cluster 2: Early European Colonization (1600-1763), and Cluster 3: Fur Trade)

At the Grade 11 level, Canada - A Social and Political History, or the new History of Canada.

Other possibilities include World History: Societies of the Past at the Grade 8 level, or math and science classes using the artefacts in the database as a data set.

Students and teachers are a target audience for this database, and I feel it is important to solicit feedback as to whether or not this resource is useful. To that end, I would like for students to employ the database in the context of a classroom activity, and then comment on their experiences via an online survey. If an entire class activity is not possible, I would still be very interested in your opinion, as a teacher, of the perceived usefulness of the database. Links to all feedback mechanisms (survey, feedback form, e-mail address) are available on the site's homepage.

If you are interested in participating in this research, or would like more information, please contact me at XXXXXXXXXXXXXXXXXXXXXXXXXX or:

Researcher:
Ashleigh Czyrnyj
Department of Anthropology
435 Fletcher Argue Building
University of Manitoba
Winnipeg, MB R3T 5V5
Ph: XXX-XXXX

Supervisor:
Dr. Gregory Monks
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435 Fletcher Argue Building
University of Manitoba
Winnipeg, MB R3T 5V5
Ph: XXX-XXXX

This research has been approved by the Joint-Faculty Research Ethics Board. If you have any concerns or complaints about this project, you may contact the above-named persons, or the Human Ethics Secretariat at XXX-XXXX, or e-mail
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX.

Thank you in advance for your interest and participation.

Appendix B. Full text of all free-form survey responses.

Question	Question and responses ¹	Demographic categories ²
1	<p>What content did you find most interesting? Other (please specify):</p> <p>1. Decoration,toys</p> <p>2. Unless you know what you're looking for, difficult to 'explore'</p> <p>3. none of it was that interesting. the pictures were too small when available at all</p> <p>4. Articles with pictures</p> <p>5. photographs of all the artifacts</p> <p>6. I found some of the jewelry particularly interesting.</p> <p>7. adornment</p>	<p>NA, F, NS, T</p> <p>NA, F, S</p> <p>NA, F, S</p> <p>NA, F, S</p> <p>NA, F, NS, MP</p> <p>NA, M, NS</p> <p>NA, F, NS</p>
2	<p>Were you satisfied with the information presented? If no, what other kinds of information would you like to have seen / seen more of?</p> <p>1. description of use where the object itself isn't obvious</p> <p>2. Links to other similar artifacts. Links to written resources about the artifact in question.</p> <p>3. Reference to the publication(s) or link to the site summary, which includes the publication references with each artifact</p> <p>4. Overall, it was a great database. A link to historical info would be nice but is not necessary.</p> <p>5. As a teacher I would like an approximate age listed on the artifacts. Are they 100 or 600 or 6000 years old? Also when I read FhLv-7 I have no understanding of what that means. Students might look up toys and there was only one listed with no picture available. I appreciate finding out how the artifacts were located. Good luck in your research. *Name*³</p> <p>6. In the context of archaeology, I expect the information is sufficient. As an educator, I would likely want more links to the history or the people.</p> <p>7. The search tool is somewhat cumbersome. The information presented for each artifact was good but the ability to search based on some of the information presented in the notes about individual artifacts was limited. This could be improved.</p> <p>8. floral?</p> <p>9. Details on origin of items</p> <p>10. Carbon dating of fauna and lithics</p> <p>11. Contextual information available as link. I am seeing it as a non-archaeologist.</p> <p>12. Plant remains</p> <p>13. However, more contextual information about the sites and where artifacts are coming from would be interesting - that is how do the</p>	<p>NA, F, S</p> <p>A</p> <p>A</p> <p>NA, F, S</p> <p>NA, F, NS, T</p> <p>NA, F, NS</p> <p>NA, M, S</p> <p>NA, F, S</p> <p>NA, M, NS</p> <p>NA, F, NS</p> <p>NA, M, NS, MP</p> <p>NA, F, S</p> <p>NA, F, S</p>

artifacts relate to each other, within one site or between sites?	
14. seems like there is no media. Is there plans to put up for example ethnographic videos or instructional vids?	A
15. For so many of them there was no image available, and there's almost no point putting it up there without an image. Otherwise it's basically just a spreadsheet of data - it's too hard to look through.	NA, F, S
16. When clicking on an item's picture, it would be nice if it takes the viewer to a page with a larger/better quality picture of the item - in order to see details better, etc	NA, F, NS, MP
17. I find it highly inappropriate and insulting for companies to advertise on the pictures of the artifacts. Is it so they can profit off my heritage? I don't see anything on your site about involving or having any Aboriginal collaboration.	NA, S
18. More pictures would have been good. Wasn't really sure what some stuff was. For example, a "tinkling cone" was the featured artifact but I had no idea what that was.	A
19. more historical information, like a link to what the item might have been used for.	NA, F, S
20. This question should have a third option - neither satisfied nor dissatisfied.	NA, F, S
21. More pictures of the items collected! A picture is worth a thousand words, right?	NA, F, S
22. a lot items there are no pictures and it would be nice to see the era from which the item was from Also when you try and search by category and select (for example) weapons a lot of repeat items are listed such as flint. Instead there should only be one listing for each category with all "flint" items shown.	NA, M, S
23. more pictures, information on location and other artifacts found nearby	NA, F, NS
24. More photos would have been appreciated, although it appears that they will be added in the future.	NA, M, S
25. larger description of artifacts. Photo option for closer view.Different photo angles of artifacts. Higher resolution of all photographs.	NA, F, S
26. Much of what I looked at said "no image available" I would have liked to see more photos	NA, F, NS, MP
27. Possibly some date of manufacture on the man made items.	NA, M, NS
28. I would've loved to see a plain language description of what the artefact was used for.	NA, M, NS
29. More photographs	NA
30. Information as to how the items were used	NA, F, NS
31. More context of what it provides on the history of the region	NA, M, NS
32. Additional photos of artifacts.	NA, M, NS

33. More photographs are needed	NA, M, S
34. I have no idea of the sites involved. Was it a midden, an old homestead, a fort? There were no narratives to explain what you had found, and no indication as to age of the objects. I find archaeology interesting, but could not get into this.	NA, F, NS
35. limited amount of images, description of use or purpose of items limited in object view.	NA, M, NS
36. Name of Primary Investigator	A
Publication (if any) of site analysis	NA
37. More visual depictions of objects within the collection	NA
38. More visual media is needed to better represent the objects presented	NA, F, S
39. -do have approximate dates for things such as the jewellery? more images of artifacts (obviously, although understandable if they are in an ongoing acquirement process)	NA, F, S

4

Overall, did you find UM Archaeology easy to navigate? Additional comments:

1. had some difficulty navigating back to the search function to start a new search	NA, F, S
2. Although it seems incomplete as not all the tabs displayed information - it also seems a little premature for a survey if these tabs are still under construction.	A
3. Clear labeling.	A
4. In site section, reference should be to previous and next site rather than 'artifact'. A listing of categories for searching would make this part better.	A
5. the browse feature could be enhanced by providing images as well as words.	NA, F, S
6. Why do you not have photos of all artifacts? I saw a pail handle. Could you give me an idea of how old ,or where it was manufactured, could it have been a Hudson Bay pail? We need students to link the actual artifacts to the history at the time.	NA, F, NS, T
7. However, I would have liked to see parts of the organized differently to make the information presented on the site even easier to access for archaeologists. I will extend on this in the additional space at the end of the survey.	NA, F, S
8. It would be helpful perhaps to have a guide or tutorial so the users know what to expect for their selection. It was not obvious at first how to start. Maybe explain the difference between browse and search. Also explain the link between the search terms to be used and the glossary. Maybe make the glossary more prominent, with its own button.	NA, F, NS
9. The navigation based on the tabs along the top was somewhat	NA, M, S

helpful. But the search and browse tools need to be improved based on the above comments. Perhaps a tagging process for cataloged artifacts would be helpful.	
10. would benefit with a first letter search ability	NA, F, S
11. The search and browse options were fantastic, but there should maybe be some explanation/clarification of terms (such as 'lithics' or secondary flakes') for those with no archaeology background at all.	NA, F, S
12. Site seems slow to load pages.	NA, M, NS
13. I would really like to see a 'highlights' section for each category.	NA, M, NS, MP
14. I did struggle with the "search" feature, but was able to find what I was interested in by going under "browse", "categories".	NA, F, S
15. I didn't like when you clicked an artefact a new window opened, it didn't navigate from the same window.	NA, F, S
16. When using the function browse by name should have letters instead of just listing them in order (844 pages). If had subcategories (A, B,C,...) then would be easier to navigate. Browse and search functions too similar. Browse by Object Name is easier to navigate then the random arrangement present in the search function.	NA,F,S
17. The search engine needs to upgraded to recognize more general terms for those who do not know archaeological categories. Alternatively, providing a drop down list of the categories used would be helpful.	NA, F, S
18. load times a bit slow but could be the amount of data. or my computer.	A
19. Something worth considering is to group the artifacts within a certain category. So within architectural, for example, have a sub-category for "nails" or within clothing, one for "buttons". Otherwise it takes too long to browse, especially considering there can be over 20 pages in a given category.	NA, F, S
20. Very easy - nice simple, clean layout	NA, F, NS, MP
21. It was difficult to navigate backwards in the browse category - kept going back to the top menu rather than the category menu.	A
22. Would've liked to see an advanced search option, to only see entries with pictures available.	NA, F, S
23. Seems to be a tool that would be most used by professionals in the field. If the website is designed to increase public interest, I'm not sure it's organized in a way that will accomplish that...too technical.	NA, F, S
24. However, I wish there was a link along the side of each page so you wouldn't have to go back to the index page each time to look for something different, you could access it from every page. As well, I found it quite slow to load.	NA, F, S
25. Yes it was easy to navigate but it might be improved with multiple	NA, F, S

	searchable categories IE cermanics [sic] vs pottery	
	26. However it would be nice if I were searching say "pipes", when I click on next artifact it takes me to the next pipe, not the next artifact from the excavation site such as a pottery sherd.	NA, F, NS, MP
	27. I liked that under categories you went to a list of subcategories to to choose from, it would have be good to have a similar list for other fields such as location, so you could pick from a list.	NA, F, NS, MP
	28. The browse category had too many pages (over 800) perhaps collapsing categories first (i.e. all ammunition in one category instead of individual ammunition types) which can then be expanded on a second page.	NA, F, S
	29. I had a difficult time knowing what sorts of artefacts were available (ie, that list on the first page of the survey), as well as what sites there were to browse.	NA, M, NS
	30. I do not know very many names of sites in Manitoba. It would be interesting to have a list of sites that are available to search.	NA, F, S
	31. If you are ever looking for database style inspiration, my favourite database is found on a knitting website called www.ravelry.com . They managed to organize a database of over 200,000 knitting patterns into a very friendly, easy to use place. The database grows by about 100 new patterns each day.	NA, F, NS
	32. Present statistics up front (# of rimsherds, # of proj points, # and designations of sites, etc. Arrange listings in technology tree, improve images	A
	33. Overall, yes. It does seem that some of the categories could be collapsed. For example browse by location (if you don't know exactly what location you're looking for, flipping through 845 pages seems excessive).	NA, F, S
6	Did you learn something new about archaeology while exploring UM Archaeology? If yes, what was it?	
	1. The site named the person who collected the artifact. I like that you had a map of the area where collected.	NA, F, NS, T
	2. the diversity of sites around the province.	NA, M, S
	3. a lot of pipe parts from the 1800s	NA, M, NS
	4. initials denoting carbon dating	NA, F, NS
	5. They have a lot more artifacts than I thought	NA, M, S
	6. Primarily the type of artifacts found in Manitoba as I was unaware of what archaeological finds there have been. Though it would be nice to link to other articles of information that was around the site or about the excavation/artifact.	NA, F, S
	7. learned of objects that I had not known about previously	NA, F, NS, MP
	8. Manitoba archaeology has a very diverse and interesting past.	NA, M, S

9. The way objects are classified and categorized is much more [sic] detailed than I would have thought. I also wondered about the ink labeling on the 1912 American coin, and what sort of inks are used that won't affect the material.	NA, M, NS, MP
10. presenting pictures with no story is almost useless	NA, S
11. I learned more about material specific to Manitoba.	NA, S
12. If yes, what was it?	NA, F, S
13. there are lots of categories and classifications	NA, F, S
14. what constitutes clothing e.g. buttons	NA, F, S
15. Always learn about items you have never seen before. Just interesting facts	NA, M, S
16. terminology	NA, F, NS
17. I learned about individual artifacts. I found that the information fields chosen to be along museological norms. Kudos!	NA, M, S
18. I learned some of the generalized classifications of artifacts, as understood within the profession.	NA, M, S
19. What the University of Manitoba, department of anthropology has in its archaeology collection.	NA, F, S
20. I'm a layperson, but I never considered that misc. animal [sic] bones were collected as part of an archaeology dig.	NA, M, NS
21. New information about sites and material recovered.	NA, F, NS
22. I didn't realize we had so much [sic] stuff from so many sites	NA, F, S
23. That history is all around us - if we just know what to look for	NA, F, NS
24. A new way to access archaeological material and records!	NA, M, S
25. Didn't realize there were so many categories of findings	NA, M, NS
26. I did not spend [sic] very much time exploring, but I enjoyed the photo's [sic]. When I searched basalt I saw an interesting lithic.	NA, F, S
27. apparently, a lot of bead and buttons, etc were found at FgLt-01 :)	NA, F, NS
28. the large number and variety of artifacts catalogued	NA, M, S
29. A Jew's harp was found as a musical instrument. It made me curious as to the history and source of such an instrument.	NA, F, NS
30. Extensive amount of work required to categorize each item and determine it's practical use.	NA, M, NS
31. The degree of archaeology interest in Manitoba and the specific nature of the Grand Rapids area.	NA, M, NS
32. I was unaware of these findings in Manitoba and surprised of the dates of the artifacts.	NA, F, NS
33. Using the glossary alone was very educational. It gave a very good overview of the many artifacts that Manitoba has. Would be interesting even for the average person to browse.	NA, F, NS
34. the terminology link was excellent. Also very good to see how you are defining these terms, as I have met a few people who disagree on a few of them. -will also be interesting to see posts in the narratives.	NA, F, S

Why?

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1. browse to get a general idea of what's on the site; search to look for Specifics | NA, F, S |
| 2. Although the listings in browse seemed to be presented without rhyme or reason - artifacts not in alphabetical or by category when I did a cursory search. | A |
| 3. I wanted to see how they differed. | A |
| 4. Easier to browse through information than try to determine search categories/terms. | A |
| 5. Gave a good idea of how the site was organized. | A |
| 6. looking for specific categories | NA, F, NS, T |
| 7. The categories section is the most valuable tool. The search tool is excellent too, especially if you have a specific site, tool, etc, you are interested in finding. | NA, F, S |
| 8. Makes it easier if you don't know the name of something | NA, F, NS |
| 9. I am not necessarily familiar with the search terms used. So category browsing was easier. | NA, F, NS |
| 10. Search was used but was not very helpful and didn't narrow results adequately. Also, having two different search boxes will only make the process needlessly complicated. One search box which searches for matches to the criteria across the entire articles for each artifact would help. | NA, M, S |
| 11. didn't understand search criteria, ie.results displayed | NA, F, S |
| 12. Search function was no more specific than browse function. | NA, M, NS |
| 13. because I know very little aqbout [sic] archaeology | NA, M, S |
| 14. It was easier to find things. Search required you to know more specifically what you were looking for. | NA, F, S |
| 15. search gave options of what you could find. None of my words used in the "Search" field worked | NA, M, NS |
| 16. I found that many of the artifacts I entered in the search field yielded no results (likely because those particular artifacts are not in the database). The browse was much better, especially being able to look at broad categories. | NA, F, S |
| 17. Wasn't sure what I was looking for so it was a good starting point to eventually generate more specific searches. | NA, M, S |
| 18. Browse and search functions very similar, Browse by letter was more organized than the random arrangement used in the Search. | NA, F, S |
| 19. It was faster to search than browse. | NA, F, S |
| 20. Although you can search within browse, once you've chosen a category, nowhere on the site was that stated, so it at first appeared as though there was no way to refine what you were interested in within the browse feature. | NA, F, S |
| 21. because I want to help out Ashleigh and check out her hard work. | A |

22. Search required me to be awfully specific, and since I wasn't looking for anything in particular it didn't meet my needs.	NA, F, S
23. I didn't know exactly what I wanted to search for until I had done a quick browse	NA, F, NS, MP
24. to find specific items and to casually browse to see what other artifacts are in the collection	NA, M, S
25. Just looking, not for anything specific. Liekly [sic] the next tmie [sic] I come back ti [sic] will be for someting [sic] more specific. back ti will be for someting more specific.	NA, M, NS,MP
26. It was faster to find things using browse than search - the search function wasn't very easy to use or intuitive. You seem to have to know what category something fits in before you can search for it.	A
27. browse had the thumbnails, which was cool, and also started with a list, and I was like 'Oh, weapons, that sounds interesting'	NA, F, S
28. I was not interested in anything specific at the time.	NA, F, S
29. Generally I know what I'm looking for when I visit an online collection.	NA, F, S
30. Need another option for indifference.	NA, F, S
31. I found the search feature to be a little slow.	NA, F, S
32. it seemed easiest	NA, F, S
33. I'm not an archaeology student so I didn't start with anything specific in mind; I was just browsing out of curiosity.	NA, F, S
34. browse to explore and search to find specific items	NA, F, NS
35. When evaluating the website "browse" is more appropriate. If I were looking for a particular artifact, or specific information, the "search" function would be better.	NA, M, S
36. If I was on the site for a specific purpose I would prefer to search, but browsing is my preferred way of exploring the site.	NA, F, S
37. The Browse menu would automatically bring me to the Search Menu (50% of the time)	NA, F, NS, MP
38. It depends on what I'm looking at / for at the time	A
39. I was exploring, but not seeking.	NA, M, S
40. my search key words didn't work.	NA, F, S
41. wanted to see the difference between the two	NA, F, NS, MP
42. I wasn't looking for anything in particular, so it was nice to be able to see the range of what you had	NA, F, NS, MP
43. Could see what was available as I wasn't looking for anything specific.	NA, F, S
44. I started with browse, and then as I looked at some of those items, I thought of specific things that I wanted to search for.	NA, M, NS
45. I wanted to see a cross-section of the available material.	NA, F, NS
46. I didn't know what to search for.	NA, M, NS
47. They both work well	NA, F, S

48. Easy to choose categories	NA, M, NS
49. Didn't know what to look for	NA, M, NS
50. Just checking to see what was on the site	NA, F, NS, MP
51. At the beginning it was not easy to get results for my searches. Once I figured out that "ceramics" was preferred [sic] over the term "pottery" it was easier.	NA, F, S
52. I browsed because I wasn't looking for anything specific	NA, F, NS
53. because browse	NA, F
54. exploring the website	NA, M, S
55. I was searching for visual objects.	NA, F, NS
56. I am an experienced web user for research, so I often use both browse and search [sic] features	NA, M, NS
57. It was easier to navigate and to review previous info.	NA, F, NS
58. I was only curious about this site and was not using it for anything specific.	NA, F, NS, T
59. Shows areas you might not see if doing a search.	NA, F, NS
60. I did not go to the site looking for anything in specific, so I didn't have anything to search for.	NA, F, S
61. Browse for generalized info, Search for specific images and data	A
62. new to archaeology [sic]	NA, F, NS, T
63. I liked the way it separated into different categories to select.	NA, F, S
64. I didn't always know what search term to put in. "jewellery" didn't work, but "adornment" did.	NA, F, S
65. I like to look for images/information under the category setting.	NA, F, S

8

Did you search for something specific? If yes, what was it?

1. button types	NA, F, S
2. Bison remains in the prairies.	A
3. Blackduck and Laurel ceramics, but Laurel was not found until searched on rim sherd and browsed.	A
4. I searched for ceramics just to see what pops up.	NA, F, S
5. toys, decorations(something Grade 4 students may be interested in)	NA, F, NS, T
6. clothing, toys, weapons	NA, F, NS
7. lithic bifaces	NA, M, S
8. "c"	NA, F, S
9. items related to navigation	NA, M, NS
10. lithics	NA, M, S
11. Ceramics	NA, F, S
12. The age of bone tools	NA, F, NS
13. I use several different keyword to pull up different artifact.	NA, M, NS, MP
14. Due to my interest in the Inuit I searched for ulus and endblades. I later went through the browse feature to look at other categories.	NA, F, S
15. Lithics	NA, M, S

16. Plant remains and projectile points	NA, F, S
17. Flake, Femur, general things like that. It's easier to refine search results by first choosing a category and then searching within it. It would be nice if the site could explicitly state that this is possible, perhaps on the first Browse page?	NA, F, S
18. i searched first for something general ie: bones then i narrowed down by search to a specific species and element. i did the same thing with lithics. and narrowed my search to pelican like [sic] projectile point.	A
19. pottery - didn't find any spearpoint - found one	A
20. "weapons"	NA, F, S
21. "quartz" (guess who this is...)	NA, F, S
22. stone pipes	NA, F, NS
precontact items in different categories	
23. Point	A
24. interesting architectural artifacts	NA, M, S
25. Deer bones and pottery.	NA, F, S
26. pipes, just because	NA, F, NS, MP
27. Jewelry and liquor bottles.	NA, M, NS
28. I initially searched for pottery and nothing came up !	NA, F, S
29. Musket balls - not found. We found several at the Upper Fort Garry dig in the summer of 2010.	NA, M, S
30. Punctates	NA, F, NS, MP
31. Specific lithic and ceramic types, and bison carpal bones for fun.	NA, F, S
32. topics that would interest elementary children like toys	NA, M, S
33. boot	NA, F, NS, T
34. images related to the various articles, for pending categories and related classifications	NA, M, NS
35. clothing	NA, F, NS
36. Precontact rimsherds and projectile points to examine cultural designations	A
37. Ceramics	NA, F, S

9 **Please use the following space for any additional comments you have about UM Archaeology.**

1. it would be helpful to be able to narrow searches, eg. for objects with pictures only, representing a specific era, etc...and the use of boolean equations	NA, F, S
2. Love the clarity of the images and the concise information on the right hand side. This is a great start.	A
3. It's nice to be able to see what sort of collections Universities hold.	A
4. Good start, use of Google maps is a nice touch for artifact site location. Why not use these maps in the site section as well?	A

5. What would be really great for teachers would be a travelling collection that could actually go out to school and students could hold an arrow head in their hand to get the real feel of workmanship thousands of years ago.	NA, F, NS, T
6. First, this is a really great search tool for archaeologists in Manitoba or archaeologists studying Manitoban archaeology. As a new site, it is easy to use and well organized, but I do have a few comments. 1) The information listed with each artifact is AWESOME. I know the state of the UofM archaeology collection is not in the greatest [sic] shape, so to have on [sic] online database is invaluable. Information is 100% more accessible to everyone interested, and having a digital back-up of the artifact catalogue insures [sic] that this information will not be lost (or at least it is less likely). 2) Why is the narratives section empty? If you are waiting on additional info for that section, you should put up a little paragraph explaining what the section will include in the future. 3) Is there a reason why so many pictures are missing? I realized that you have thousands of artifacts listed on the site, but in browsing the first couple of pages I noticed that half of the listed objects were missing photos, and personally I feel that being able to view photos of the artifacts is one of the most important/interesting features of the site. 4) When I clicked the option to browse the artifacts by "site" I was hoping to see a list of the sites featured on the site, and then I could click on the site I would like to view. Instead you get all of the artifacts listed by site -- 844 pages is too many to find a site. I do realize that you can simply do a "search" for a specific site, but sometimes it is nice to see what is available. Additionally, I would love to see the sites listed and the option to see the artifacts listed by date/component (e.g. Paleo-Indian, Archaic, Woodland) or by artifact category (e.g. lithic, faunal, ceramic). I think based on the information you have already collected these would be easy fixes for the site. Again, I stress that this is an excellent resource for the university and archaeologists doing research in the province. It is a great new website and I am sure in time it will become more refined and even easier to use. Good job!	NA, F, S
7. a lot of "images not available" despite claim on front page that said there were over 8000	NA, M, NS
8. interesting	NA, M, NS
9. The age of bone tools was not provided. Neither were there any narratives.	NA, F, NS
10. The site is directed to researchers and people with knowledge of the subject matter. Perhaps high-school students can also use it. But from a pure non-archeologist user, the site is complex and provide very	NA, M, NS,MP

little contextual info.	
11. I think this website is a fabulous way to share information not only for researchers, but for the general public as well.	NA, F, S
12. I think the Anthropology department should have more exposure to the general students of U of M. Most of us specifically sought out information that other students may also be interested in.	NA, M, S
13. Additional images would be nice, especially when unsure of what the artifact is by the description.	NA, F, S
14. I really like the idea of an online MB archaeological source and with time the necessary improvements will be made to create a very functional resource.	NA, F, S
15. The narratives page is a good idea. It will be nice to see something on there.	NA, F, S
16. it is a fantastic display, please keep up the good work and make it available for the world to see.	NA, M, S
17. see other comments please. I hope your project changes in the future, my classmates and I will be watching intently.	NA, S
18. Good job :)	A
19. again, would like to see an option to just search through entries with pictures. Also a list of the possible categories might be helpful, such as in a drop down menu.	NA, F, S
20. The site seems very comprehensive and was quite easy to navigate.	NA, F, S
21. See comments for question 6. Moreover, while I'm sure there's valuable information presented on the site, it is difficult to immediately recognize useful or interesting material when I only came across the site to evaluate it. I looked at some pictures...that's about it. As a non-archaeologist, and especially someone with no real background in local archaeology, it was difficult to spend a lot of time on the site. That said, the "narratives" link immediately caught my attention. That sounded interesting and I wondered what sort of information would be available. Unfortunately there's nothing there yet. It is also difficult to fill out the survey because I cannot fairly situate this website and its information in the broader context of archaeological collections and databases -- either physical or online -- so I have avoided answering a lot of the questions so far.	NA, S
22. it would have been better if I could flip through the artifacts in the categories in a format similar to the featured article; in a similar manner that clothing is featured on websites.	NA, F, S
23. As indicated before, having a catalogue of photographs of the majority of the items sees like it would increase the usability of the database. People would find it more interesting, being able to browse and SEE what is being found.	NA, F, S
24. there were many items without images which is challenging for	NA, F, S

those of us without an archaeology background	
25. Era dates are needed	NA, M, S
26. This site is very valuable in making archaeology accessible to everyone to learn about the local history and people. Personally, it has triggered a repatriation process for unprovenienced human remains (separate from these collections but connected to same digs) and that value cannot be expressed.	NA, F, NS
27. Very impressive. It's only a pity it couldn't be applied to a larger collection! The small size ignites a feeling that finding the artifact you're looking for will be by luck only. The high calibre of the qualifying data in this database could be applied to a larger database (c. 100,000 artifacts).	NA, M, S
28. I would have enjoyed being able to see the photo database arranged such that I could see 100s of images of the artifacts, and quickly compare them on the basis of diagnostic visual differences.	NA, M, S
29. see my comment on Question #4.	NA, F, NS, MP
30. I would like to see more contextual information on the artifact.	NA, F, NS, MP
31. Needs higher resolution pictures. When I click on the picture it takes me to a smaller picture (350x336) when I was expecting a larger one.	A
32. Again, I'm a layperson, but I would have liked (or I wished that there were), anecdotal info about what some of the items were, or who might have used them> That would have put a human touch or perspective on the items that I would have enjoyed.	NA, M, NS
33. The information is thorough, including locations, conditions and descriptions. As a lay person, the inclusion of maps and photos greatly enhances the information. For me, the great information wasn't always sufficient to enable me to picture the item.	NA, F, NS
34. The concept is great and hopefully more collections will be made available in the future. A list of which sites are available would be helpful to someone who isn't very familiar with the UofM collections if the database is expanded.	NA, F, S
35. It would've been nice if some of the jargon was linked directly into the glossary. If I hadn't known there was a glossary, I wouldn't have known where to look up the words.	NA, M, NS
36. Well done - and much needed so that we know what made Manitoba what it is today	NA, F, NS
37. This will be great, but I think it needs to become more widely known. Also, it should be expanded, perhaps even to the national level (in collaboration with other institutions and jurisdictions) to include materials from all over Canada.	NA, M, S
38. Would like to see more images (total artifact/images on home page led me to believe there would be more); link between glossary and a	NA, F, NS, MP

visual example would be useful	
39. I really enjoyed this site.	NA, F, S
40. This is a great idea. It gives a chance to apply concrete local examples of prehistory and history in the classroom.	NA, M, S
41. This could be a very interesting site if someone put a narrative about the background and place of the search, and added digital images.	NA, F, NS
42. I think the site well organized for someone experienced in the field, for a novice to the field and specifically to the subject matter, it could have some general information to assists the novice in direction of the site.	NA, M, NS
43. I wondered why the photos were unavailable and notice some were without catalogue numbers. Not sure of the signifigance [sic] of the later for viewers, but would have liked to see the photos of the items.	NA, F, NS
44. This site is not engaging at all. Perhaps it would be useful to stimulate the visitor with graphics and images to keep the visitor's interest to explore this site further.	NA, F, NS, T
45. Very important to educate about Manitoba history.	NA, F, NS
46. The site is very well constructed and very easily navigable.	NA, F, S
47. Hopefully, over time, the rest of the holdings will be added to the on-line database	A

14 **Choose the answer that best describes your occupation. Other (please specify):**

1. Administration	NA, F, NS
2. Education consultant	NA, F, NS
3. Customs Broker	NA, M, NS
4. Community based researcher	NA, F, NS
5. project management	NA, F, NS
6. shipper/reciever [sic]	NA, F, NS
7. small business owner	NA, F, NS
8. Technician in a museum	NA, M, NS
9. library professional	NA, F, NS
10. Senior management	NA, M, NS
11. payroll clerk	NA, F, NS
12. Business Executive	NA, M, NS
13. library technician	NA, F, NS

¹ Responses reproduced exactly as submitted by respondents.

² A – archaeologist, NA – non-archaeologist, F – female, M – male, S – student, NS – non-student, T – teacher, MP – museum professional.

³ Name removed to maintain respondent anonymity.