Sigurd Solhaug Nielsen

Developing global awareness among young students:

A study of students' experiences with the museum exhibition *A World at Stake*

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Sigurd Solhaug Nielsen

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Philosophiae Doctor
Faculty of Social and Educational Sciences
Department of Geography

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Norwegian University of
Science and Technology

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□ NTNU
Norwegian University of
Science and Technology

Abstract

The dissertation presents a case study of *A World at Stake*, a museum exhibition inspired by the United Nations' Millennium Development Goals. *A World at Stake* was displayed at Glomdalsmuseet in Elverum, Norway, during 2013–2014. The large majority of fieldwork was undertaken from January to June 2014.

Unlike many other museum exhibits, *A World at Stake* invited classes of young students to participate in and solve hands-on tasks related to global poverty and inequality, on a game board surface spread out over 250 square metres. The exhibition itself offered a particular and, in many ways, stereotypical representation of inequality and an unjust world. Rather than critiquing *A World at Stake* as such, the dissertation focuses on how young students' engagements, particularly while 'playing', were fundamental to the ways the tasks were experienced and, crucially, to the potential of these experiences to develop the students' sense of global awareness. Against this background, the main research question emphasizes the perspective of the participants in *A World at Stake*:

> *What characterises young students' experiences with* A World at Stake*, and how can these experiences be related to students' global awareness?*

The dissertation responds to this overall research question through four sub-questions, addressed in four publications. These questions are:

1. How are issues of global poverty, social justice and global citizenship addressed and promoted through *A World at Stake*?
2. How are students' curiosity-evoking capacities regarding global poverty and inequality as addressed in *A World at Stake* associated with their participation and mastery experiences in the exhibition?
3. What is the role of affect and emotion in students' experiences of *A World at Stake,* and in what ways does the exhibition affect students' understandings of 'poor others'?
4. How do young students engage in images of social inequality in *A World at Stake*, and in what ways do these engagements demonstrate how they negotiate their own lives and develop a sense of global awareness?

Together, these publications analyse different parts of the exhibition and how they mobilize different types of experiences. The dissertation applies both quantitative and qualitative methodologies and concludes that *A World at Stake* contributes to developing students' sense of global awareness to some degree. The conclusion rests on the argument that students' experiences of mastery, their affective and emotional engagement and their negotiation of identity in *A World at Stake* in different ways can be related to the three following dimensions of global awareness: 'multiple perspectives on the world', 'knowledge of global issues', and 'the world as interrelated systems'. The following book chapter and journal articles are included in the dissertation:

Nielsen, S. & Klein, J. 2015. *A World at Stake* – Global citizenship, justice, and the role of museums. Thoresen, V.W., Robert, D., Klein, J. & Declan, D. (eds.). *Responsible living - Concepts, Education and Future Perspectives*, 217–232. London: Springer.

Nielsen, S.S. 2016. Stimulating curiosity for global poverty and inequality - An explorative study of students' experiences with the exhibition *A World at Stake*. *Nordisk Museologi* 2, 41–59.

Nielsen, S.S. & Aitken, S.C. (Pending editor's decision). Affect and emotion with '*A World at Stake*'. *GeoHumanities*.

Nielsen, S.S., Setten, G. & Klein, J. (Under review). Producing global awareness? A visual analysis of young students' negotiations of images in a museum exhibition. *Children's Geographies*.

Sammendrag

Denne avhandlingen presenterer en case studie av *En verden på spill*, en museumsutstilling inspirert av FNs tusenårsmål. *En verden på spill* ble vist ved Glomdalsmuseet i Elverum i perioden 2013-2014. Feltarbeidet ble i all hovedsak utført fra januar til juni 2014.

En verden på spill inviterte skoleelever til å løse praktiske oppgaver relatert til fattigdom og ulikhet. I motsetning til mange andre museumsutstillinger deltok elevene i aktiviteter fordelt over en 250 kvadratmeter spilleflate. Utstillingen fremstilte ulikhet og en urettferdig verden på en distinkt og potensielt stereotyp måte. I stedet for å kritisere fremstillingen i *En verden på spill*, fokuserer avhandlingen på hvordan elevenes engasjement, særlig under spillforløpet, påvirket deres erfaringer med innholdet, og hvorvidt disse erfaringene har potensiale til å utvikle global bevissthet hos elevene. Den overordnede problemstillingen vektlegger derfor deltagernes perspektiv i *En verden på spill*:

Hva karakteriserer elevenes erfaringer med En verden på spill*, og hvordan kan disse erfaringene relateres til utvikling av elevenes globale bevissthet?*

Avhandlingen svarer på problemstillingen gjennom fire underproblemstillinger i fire publikasjoner. Problemstillingene er:

1. Hvordan adresseres og promoteres tema om global fattigdom, sosial rettferdighet, og globalt medborgerskap i *En verden på spill*?
2. På hvilke måter er elevenes nysgjerrighet for global fattigdom og ulikhet slik det fremstilles i *En verden på spill* relatert til deres deltagelse i og mestringserfaringer med utstillingen?
3. Hvilken rolle spiller affekt og følelser for elevenes erfaringer med *En verden på spill*, og på hvilke måter påvirker utstillingen studentenes forståelser av de 'fattige andre'?
4. På hvilke måter engasjerer elever seg i representasjoner av sosial ulikhet i *En verden på spill*, og på hvilke måter viser deres engasjement en forhandling av elevenes egne liv og utvikling av global bevissthet?

Til sammen analyserer artiklene hvordan ulike deler av utstillingen mobiliserer ulike typer erfaringer hos elevene. Avhandlingen anvender både kvantitative og kvalitative metodologier, og konkluderer med at utstillingen til en viss grad bidrar til å utvikle elevenes global

bevissthet. Konklusjonen bygger på at elevenes mestringserfaringer, deres affektive og følelsesmessige engasjement, og forhandling av identitet i *En verden på spill* på ulike måter kan relateres til tre dimensjoner ved global bevissthet: "multiple perspektiv på verden", "kunnskap om globale tema", og "verden som sammenvevede systemer". Avhandlingen inneholder følgende bokkapittel og artikler:

Nielsen, S. & Klein, J. 2015. *A World at Stake* – Global citizenship, justice, and the role of museums. Thoresen, V.W., Robert, D., Klein, J. & Declan, D. (eds.). *Responsible living - Concepts, Education and Future Perspectives*, 217–232. London: Springer.

Nielsen, S.S. (2016). Stimulating curiosity for global poverty and inequality - An explorative study of students' experiences with the exhibition *A World at Stake*. *Nordisk Museologi* (2), 41-59.

Nielsen, S.S. & Aitken, S.C. (Avventer redaktørens beslutning). Affect and emotion with 'A World at Stake'. *GeoHumanities*.

Nielsen, S. S., Setten, G. & Klein, J. (Til vurdering). Producing global awareness? A visual analysis of young students' negotiations of images in a museum exhibition. *Children's Geographies*.

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Contents

Paper 1. *A World at Stake* – Global citizenship, justice, and the role of museums

Paper 2. Stimulating curiosity in global poverty and inequality - An explorative study of students' experiences with the exhibition *A World at Stake*

Paper 3. Affect and emotion with *A World at Stake*

Paper 4. Producing global awareness? A visual analysis of young students' negotiations of images in a museum exhibition.

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PART I

1. Introduction

1.1 Putting poverty and play on the museum agenda

> *A World at Stake* is a board game the size of a tennis court, where you and your friends will be faced with different challenges depending on which space you land on. The intention behind the game is to highlight some of the inequities and absurdities that people grow up with and experience simply because they were born in a poor part of the world. (Press release 25.03.2009, Experimentarium. My translation from Danish).

The above citation is an excerpt from the press release issued for the opening of *A World at Stake* at Experimentarium in Copenhagen in spring 2009. The citation gives a flavour of an unconventional museum exhibition that places global poverty and inequality on the museum agenda. This dissertation presents a case study of *A World at Stake* and focuses on young students' experiences of engaging in the exhibition during its display period at Glomdalsmuseet in Elverum, in Southeast Norway in 2013–2014.[1]

Poverty and hunger, as they unfold in their extreme forms within some of the poorest countries of the world, represent some of the most fundamental injustices. Stark social differences surface when comparing extreme forms of poverty to living conditions in nations like Norway, where basic necessities like food, shelter, health and security are not only being provided, but where socio-economic freedoms and possibilities are in abundance far beyond life necessities. With such a contrasting view, extreme poverty appears not only unjust but also highly unnecessary. The fact that a more equal distribution of basic necessities is possible makes it imperative to reflect on the moral obligations of individuals and organisations within affluent nations to combat poverty and deprivation (Banik 2014).

How people in the Global North relate to poverty in the Global South is politically pertinent and interlinked in at least three ways; first, when comparing continents and nations, divisible goods, including the most basic life-sustaining necessities, are unequally distributed (Banik 2014). Second, unequal distribution is linked to processes of globalisation and unequal development (Dicken 2004). Third, transnational responsibilities among institutions and

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[1] The majority of fieldwork was undertaken in spring 2014.

individuals are negotiated via social, political and cultural institutions and identities (Massey 2004). What these have in common is a need to conceptualise justice and responsibility from a global perspective where the interdependence between nations and continents trumps the needs found within nation states. Mitchell (2000), for example, demonstrates well how the identities of individuals who live within nation states are affected by power geometries that transgress the borders of their countries.

The complexities that unfold when identifying poverty with globalisation, combined with the urgency of the subject matter, make it pertinent to bring scholarly attention to alternative efforts—such as exhibitions—for raising awareness of global poverty among individuals (Janes 2009; Janes & Conaty 2005).

From the viewpoint of museums, there are increasing concerns within the cultural sector about addressing issues of social justice, but museums and scholars tend to focus on the social inclusion of marginalised visitor groups or the celebration of cultural diversity within local communities (Beel 2017; Geoghegan 2010; Ministry of Culture 2012; Museum Association 2012, 2013; Sandell 2002). Those dimensions of social justice are very important for museums in their local communities, but there seems to be a notable lack of exhibition initiatives and research and that can open up discussions about visitors' responsibilities in a globalised world. As such, *A World at Stake* represents a significant opportunity for scholarly enquiry, particularly in relation to how the theme resonates with the discipline of geography's recurring interest in spatial distribution and border-crossing relations in a world of difference (Lee & Smith 2004; Mitchell 2000; Smith 1994, 2000).

A World at Stake was inspired by the adoption of the Millennium Development Goals (MDGs) in 2000, when the United Nations (UN) Millennium Declaration committed member nations to a global partnership to reduce extreme poverty through a series of time-bound targets.[2] Under slogans like 'We can end poverty', the MDGs conceptualised global poverty as a problem that can be solved. From 2000–2015, the campaign worked as both an

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[2] The eight MDGs are the UN's strategy to '[…] eradicate extreme poverty and hunger' within 2015 (goal 1). The other seven goals are means to achieve the first goal: '2. Achieve universal primary education, 3. Promote gender equality, 4. Reduce child mortality, 5. Improve maternal health, 6. Combat HIV/AIDS, malaria, and other diseases, 7. Ensure environmental sustainability, 8. Develop a global partnership for development'. (United Nations 2016)

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awareness- raising campaign and as a system monitoring a series of poverty indicators (United Nations, 2016). The science centres, Experimentarium in Denmark and Jærmuseet in the southwest of Norway, were inspired by this campaign and presented *A World at Stake* in 2009.[3] The exhibition targeted primarily young students in Denmark, Sweden and Norway, and displayed global poverty and world inequalities in a tangible way. The same press release that introduced this dissertation elaborates some of its intentions:

> The game is meant to be played like other board games: it should be captivating, challenging and fun. It should also be both 'hands on' and 'minds on'. The hope is that the play, the intensified presence and the personal experience will open the players' eyes to the fact that life in our world is rather unfair when it comes to the conditions into which poor people are born. [...] The game may offer participants a different view of the world and inspire a reduction in the substantial differences that prevail between countries. (Press release 25.03.2009, Experimentarium. A full version is provided in Appendix 1).

Experimentarium's press release is indicative of the intentions behind *A World at Stake*. It was designed to facilitate a high degree of activity and participation, and to be 'captivating, challenging and fun'. But it is also intended to evoke something more, to 'offer participants a different view of the world and inspire a reduction in the substantial differences that prevail between countries'. It can be inferred from this that the exhibition underlines aspects of inequality in the world. This is also indicated through its title, which refers not only to the world confined within the exhibition space but also to the world as we often perceive and experience it. The title represents a bold political statement that suggests a normative stance in its way of understanding the world as being in a critical state and in need of action and change.

Commenting on the game format, chief designer of Experimentarium Henrik Helsgaun doubts they would have chosen a game format ten years earlier. According to Helsgaun, contemporary demands on visitor experiences have pushed science centres, as well as museums, to communicate through facilitating presence and personal experiences. The game format, which allowed students to perform the exhibition in a tactile way, is clearly important

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[3] Experimentarium is a science centre, while Jærmuseet is both a museum and a science centre. Experimentarium had a 75 per cent share of the project, and I consider them as the curating institution. The project received financial support from DANIDA (Ministry of Foreign Affairs of Denmark) and NORAD (Norwegian Agency for Development Cooperation).

to Experimentarium as a means of communication. One should not be blind to the idea that the game format itself is related, at least in part, to the fact that science centres and museums are driven by corporate demands to offer experiences that appear interesting and attractive and stimulate positive emotions so that visitors are attracted to return, which generates income (Høeg 2006; Søndergaard & Janes 2012; Witcomb 2011). While the distinctive game format of *A World at Stake* may, in part, be explained from a commercial point of view, the exhibition is nonetheless inspired by and strongly tied to the MDG campaign, where slogans like 'We can end poverty' were used to signify the main aim (United Nations 2016). *A World at Stake*'s link to the MDGs means students' experiences need to be considered not just in view of an unconventional game format but also in view of the themes of global poverty and inequality.

A project document from the development of the exhibition, however, states that the primary purpose of *A World at Stake* is '[…] not to confront the students with the troubles of the world or to appeal to their compassion [for the poor], but above all to set thoughts into motion as they navigate through the game.'[4] This statement brings attention to students' momentary experience and suggests that *A World at Stake* is preferably assessed through attending to the ways it sets thoughts into motion, rather than the degree to which the exhibition triggers good-hearted actions per se. So, although *A World at Stake* makes a bold and normative statement, the press release and chief designer Helsgaun are right in being cautious about predicting its effects on visitors: '[…] their experience here at Experimentarium *might* form the basis of an important decision later in their life' (my emphasis).

It is hence pertinent to point out two important limitations posed by the exhibition. First, the exhibition was offered as a short and intensive one-hour experience. This is a short time space to introduce students to a topic like global poverty and inequality. Second, *A World at Stake* drew on a perspective of global poverty defined by the MDGs and UN's statistical approach to distinguish countries and regions through poverty indicators. The MDGs are to a large extent based on statistics developed by the World Bank and the World Health Organisation (Ravallion et al. 2009). Critics argue that the MDGs, through statistical representation and

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[4] Experimentarium's project document, 'En verden på spil', updated 12 January 2009. Unpublished report.

comparison, contribute to reducing Global South countries to problem areas and do not to a satisfying degree address the responsibilities of its wealthier counterpart, the Global North (Amin 2006). Accordingly, a limitation posed by *A World at Stake* is that it did not question the Global North/Global South relationship and did not offer a questioning of the complex nature and causes of global poverty and inequality.

Rather than pursuing these limitations into a critical examination as such, I have chosen to take inspiration from the fact that *A World at Stake* represents one of the very few attempts within the museum sector to respond explicitly to global poverty and inequality. This fact allows me to focus more specifically on the experiences resulting from the complex interaction between the contents and perspectives conveyed in the exhibition, and students' participation in it. This focus, in turn, opens a possibility to examine whether *A World at Stake* potentially contributes to developing a sense of global awareness among young students as a response to the exhibition.

1.2 Objectives and research questions

A World at Stake was displayed in Glomdalsmuseet (Elverum, Norway) from August 2013 to June 2014. Against the background of fieldwork primarily conducted at this location from January–June 2014, I have approached *A World at Stake* according to the premises and intentions I presented in the previous section. Because young students' engagements and involvement were fundamental to the exhibition experience, the main research question has a twofold aim, that is to interrogate the experience of the students in *A World at Stake*, and to reflect on the potential effects of these experiences:

What characterizes young students' experiences in A World at Stake, and how can these experiences be related to students' global awareness?

The main research question is unpacked through four sub-questions:

1. How are issues of global poverty, social justice and global citizenship addressed and promoted through *A World at Stake*?
2. How are students' curiosity-evoking capacities regarding global poverty and inequality as addressed in *A World at Stake* associated with their participation and mastery experiences in the exhibition?

3. What is the role of affect and emotion in students' experiences of *A World at Stake,* and in what ways does the exhibition affect students' understandings of 'poor others'?
4. How do young students engage in images of social inequality in *A World at Stake*, and in what ways do these engagements demonstrate how they negotiate their own lives and develop a sense of global awareness?

These sub-questions are responded to in Papers 1 to 4, which are presented in more detail in Chapter 4.

My choices for undertaking this research reflect both personal and professional interests. Before elaborating on the main concepts, the next section presents a short note on my motivation and position.

1.3 A short note on personal motivation and position

According to Smith (1994), it is necessary for researchers whose projects touch upon ethics and morality to be open about their own values and motivation. Throughout this project I have been motivated by attempts to integrate established research themes from human geography with museum practice. This reflects my twofold identity as a geographer and a museum practitioner.

Over a 17-year period, I have held different positions in different museums. Over the last 10 years, I have been in full-time positions, working across a broad spectrum of museum tasks, such as documenting tangible and intangible heritage, curating exhibitions and educational initiatives, conducting research and organising events. Before and throughout this PhD project I have been working as curator at Glomdalsmuseet in Elverum, Norway, with a focus on documenting and disseminating cultural diversity within Hedmark county. These work experiences have taught me to value museums as educational institutions, beneficial not just for young students but for the wider public and societies.

From my own observations, supported by scholars within the museum sector (Fleming 2002; Hooper-Greenhill 1999, 2011; National Museums Liverpool 2014; O'Neill 2006), there is a need for research that can address the educational role of the museum, both in light of broader

societal needs and also at the more fine-grained level of visitors' experiences within museums.

My motivation has also been fuelled by initiatives within the discipline of geography, like Mitchell's (2008) 'People's Geography Project' that seeks to popularise geographical knowledge so that people outside of academia may be better equipped to understand and respond to ongoing struggles for social justice (101). The theoretical, political and empirical work offered by radical and critical geographers over the last decades is important, Mitchell argues, not only intellectually but also practically. Mitchell's concerns with disseminating geographical knowledge into popular consciousness resonate with more recent attempts by museum scholars and practitioners to elevate a social justice agenda, such as the struggle to lower social barriers to visit museums or suggesting solutions for how museums can deal with pressing societal issues like poverty, without necessarily changing their mission statement (Fleming 2002; Simon 2010). I follow up on my motivations, including personal position, in Chapter 5. For now, it suffices to say that *A World at Stake* as a museum initiative has made it possible to study notions of social justice, that is of global poverty and inequality, represented in a museum context and experienced by young audiences. Young students in particular are in a process of getting to know the world and finding their place in it, and because they negotiate between categories of childhood and adulthood, it seems particularly important to explore the experiences of this group. What the exhibition allows for is thus, in a Norwegian context, novel research challenges.

In the next sections I approach these challenges, including the relevance of this dissertation, by placing my study of students' experiences of engaging in *A World at Stake* in the context of debates and literatures within the fields of museum studies and human geography. I will use the main concepts of the dissertation —global awareness and experience, respectively—to do this, and these are briefly presented in the following section.

1.4 Main concepts in the dissertation

The dissertation is structured around two main concepts. The first concept is global awareness, which corresponds to the overall purpose of the exhibition identified earlier in this chapter. Merryfield (2008) provides a concise definition of global awareness as '[…] habits of the mind that foster knowledge, interest, and engagement in global issues, local/global

connections, and diverse cultures' (363). Global awareness represents a virtue, particularly in the development of young students, and should not be perceived as a fixed state or as something you either have or do not have, but rather as a process. Global awareness is mainly discussed within educational contexts and appears particularly in discussions of so-called 'global education' in American, British and Canadian curricula (Burnouf 2004; Hanvey 1982; Kirkwood 2001; Klein et al. 2013; Merryfield & Subedi 2001).

The second main concept is experience. I base my definition of experience on John Dewey (1916/1968), who argues that experiences, particularly in learning contexts, depend on both embodiment (doing) and mind (reflecting). Reflective experiences involve perceiving something happening and becoming aware of either what caused it to happen or the consequences of what just happened.

In what follows, I set these concepts in the context of relevant literature and debates within museum studies and human geography, respectively. The section on museum studies opens up research on museum experiences more broadly, and the concepts of mastery, affect and emotion and negotiation more specifically. This is followed by a section on human geography and includes the concepts of social justice and three dimensions of global awareness.

1.5 *A World at Stake* and museum studies

Particularly since Peter Vergo's (1989) 'The New Museology', museum studies has shifted from an instructive approach on museum practice, such as how to collect, manage, research and disseminate tangible heritage, towards a more critical interrogation of core assumptions and institutional reflexivity. In the 1990s, museum practice and museum studies adopted 'other' perspectives through feminist, postcolonial and social history perspectives (Geoghegan 2010). According to Macdonald (2011), the so-called 'new museology' involved three movements in particular. The first involved a recognition that the meanings of museum objects are situated and contextual rather than inherent. Second, museum studies has witnessed a widening of scope to include areas that were previously deemed irrelevant, such as commercialism and entertainment. The third movement highlighted by Macdonald includes a focus on the many ways audiences perceive museums and their exhibitions. Together, these three movements have shifted the understanding of museums and their meanings from fixed and bounded towards more dynamic ones (Macdonald 2011). According to Hooper-Greenhill

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(2011), more academic theory-driven visitor studies have expanded the notion of the visitor, which has gone from being thought of as an undifferentiated mass to being thought of as '[…] active interpreters and performers of meaning-making practices within complex cultural sites' (362). Visitor studies are thus closely tied to museum practice and the particular experiences that unfold through visitors' encounters of museums.

According to Falk and Dierking (2013), people's sociocultural background affects whether they consider museums relevant and worth visiting. More importantly for the current project, visitors' backgrounds also affect their negotiation of the museum content. This means that museum experiences are increasingly seen in relation to what visitors bring to the museum, which in scholarly work is diverted into matters of inclusion and access and of experience and interaction.

Inclusion and access relate to both physical and mental barriers to participation among visitors and remain a vital focus area for museums (Geoghegan 2010). Fleming (2002) argues that museums have, to a large extent, prioritised catering to well-educated visitors and have failed to accommodate the needs and interests of a wider public with a differentiated set of social and cultural backgrounds. Sandell (2002) argues that social difference and people's varying competence and ability to take part in culture represent inequalities that museums need to respond to by offering content that appears relevant and inclusive to less privileged audiences. O'Neill (2006) sees this from the viewpoint of museum staff and argues that museum exhibitions with an inclusive profile risk being dismissed by many museum professionals as entertainment for the masses and a threat to the museums' integrity. The significance of inclusion can be seen through the establishment of scholarly initiatives such as the 'International Journal of the Inclusive Museum', founded in 2008. In a Norwegian context, the white paper, 'Culture, inclusion, participation' (Ministry of Culture 2012), states that active measures need to be taken if the wider population is to benefit from cultural heritage, such as that represented in museums. The body of research and policy initiatives related to inclusion and access suggests that the tactile format of *A World at Stake* can represent a contrast to the majority of exhibitions, which demand that students absorb content more passively. It is thus pertinent to look more closely into students' experiences of *A World at Stake*.

Experience and interactivity represent a smaller branch of museum studies that can help put student's experience of *A World at Stake* into context. While interactivity takes place in all visitor experiences of museum exhibits to a varying degree, the kind of interactive displays offered by *A World at Stake* is most notably seen in science museums and science centres around the world, and their differences from museums needs to be pointed out before I move on to interactivity in more detail.

Science centres are at the outset motivated to increase visitors' interest in the natural sciences (Macdonald 1998). In Norway, science centres differ from museums in that most of them do not have collections, and they focus their hands-on approach on communicating principles within the natural sciences, in particular maths, physics and chemistry (Forskningsrådet 2016). In Norway, the division between science centres and museums is upheld by the fact that the two types of institutions receive financial support from different ministries—the Ministry of Culture and the Ministry of Education and Research, respectively—each with different guidelines for funding and reporting.[5] Based on my experience with evaluating museums and science centres (Persson et al. 2009), there seems to be some tension between the two. Science centres are often associated with fun and entertainment, and are considered by some as too much entertainment, and focus on commercialism and corporate identity (see for example Høeg 2006). On the other hand, some cultural history museums can appear elitist in their emphasis on static representations and aesthetic considerations over tactile engagement and audience interaction, a point highlighted by O'Neill (2006).

The application of interactive displays in science centres usually involves a mechanical device the visitor can operate, typically by pulling levers, or turning wheels: it involves physical activity and is associated with a 'hands-on' approach (Witcomb 2011). The majority of research on experiences within interactive displays in science centres relates to their contribution to literacy and learning within the natural sciences (Nordal 2010; Stuedahl et al. 2014). An example is Bamberger and Tal's (2006) study of students' level of free choice

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[5] Some museums, like Jærmuseet and the Norwegian Museum of Science and Technology (Oslo), are museums with an additional science centre status, and they receive funding from Ministry of Culture as well as the Ministry of Education and Research.

during their visits to Israeli science museums, and its effect on their personal experience and their possibilities of better learning.

Even though the majority of research on interactive displays relates to science learning, it is of relevance to the current project. Research on interactive displays demonstrates the importance of what the visitor brings to the experience and shows how meaning-making results from a two-way process between the exhibition and the visitor (Witcomb 2011). Further, research on interactive displays suggests that they enable a broad range of visitor engagements, involving both the body and the mind (Witcomb 2011). Affects and emotions are central to Witcomb (2013), who demonstrates how affective experiences with a high level of engagement in exhibitions may be used to facilitate a more critical reflection of societal concerns in both the past and the present. Mastery represents another dimension of experience and can be described as the degree to which audiences feel they can understand, perform and accomplish the overall challenges presented to them (Bandura 1997). According to Middlebrooks (1999), mastery is particularly important for young students' experiences of museums. Falk et al. (1998) find that mastery, among three other dimensions assumed to affect learning, has a significant effect on audiences' learning outcomes. Museum experiences with interactive displays are often shared within a social setting of friends, family or classmates, and it is assumed that these experiences are negotiated through the situated and social contexts produced during the visit (Falk & Dierking 2013; Witcomb 2011). In the current project, I use some of the research on mastery, affect, emotion and negotiation to explore and go deeper into some of students' experiences in *A World at Stake*. This contributes to the notable lack of research on interactive-based exhibitions that deal with subjects like global poverty and inequality.

Because *A World at Stake* was in part inspired by the MDGs and used images from different NGOs' activities in developing countries, I have looked for literature that traces the role of museums in questions of development. The majority of this literature seems to involve a focus on museums in developing countries and in relation to their local environment and community. Gershevitch (2014), for example, presents a broad agenda to integrate culture in development at all levels of the UN post-2015 Development Agenda, and argues that museums in particular can be enablers of sustainable development. Galla's (2012) edited volume discusses the significance of heritage sites and museums in relation to local cultures

and sustainable development. Despite the fact that many Global North countries have centuries-long relationships with distant countries through a history of trade and colonialism (Tvedt 2003), the global perspectives that connect museums of Global North countries to larger parts of the world appears to be little researched.

One exception is the volume edited by Basu and Modest (2015), which brings together conversations over the relationship between museums, heritage and development, with one example looking into the representation of colonial activities abroad (by the Dutch) in Dutch museums. Another exception is Lien and Nielssen's (2016) studies of representations of 'others', that is of domestic minorities and foreign ethnic cultures, in Norwegian museums. Some of their examples relate to Norwegian participation in colonial activities such as trade, military operations and proselytizing. While some of this literature could find some tangential points in *A World at Stake* through explorations of a colonial past, the publications of Basu and Modest (2015) and Lien and Nielssen (2016) do not consider how exhibitions engage audiences in distinctive modes of performing and experiencing the content. Looking beyond the museum studies literature, I have not come across exhibition initiatives in other museums that have appeared adequately similar or relevant to *A World at Stake*. The current dissertation hence sees this gap as an opportunity to study the students' experiences of *A World at Stake* in a Norwegian context as a contribution to the scant literature on museums of the Global North and how they relate to questions of development in Global South countries.

1.6 *A World at Stake* and human geography

The current project is to a large extent set within human geography and in critical geography in particular. Critical geography encompasses several orientations within geography. For Castree (2000), critical geography contains a '[…] plethora of antiracist, disabled, feminist, green, Marxist, postmodern, postcolonial, and queer geographies which now constitute the large, dynamic, and broadbased disciplinary Left' (956). Many of these orientations are concerned with social justice, both as identifying injustices, and, in some cases, suggesting liberatory alternatives. David M. Smith (1994) has substantiated the relationship between social justice and geography by investigating theoretical definitions of social justice. Identifying structures and underlying mechanisms that uphold unequal, and thus unjust life conditions and possibilities is one of the aims in Marxist inspired geographies, such as in the works of David Harvey (1996 and 2009). Landscapes are at the forefront in, for example,

Mitchell (1996), Mels and Mitchell (2013) and Setten and Brown (2013), who demonstrate how landscapes are both means and ends in struggles for social justice. Another orientation is post-colonial geographies that emphasise the heritage of colonised and colonising nations and the prevailing unequal power relations between the Global North and the Global South. For example, the work of Sarah Ahmed (2000) investigates how post-colonial and colonial heritage affect embodied encounters of difference. In a similar vein, Haldrup et al. (2006) and Hall (2013) offer investigations of how post-colonial perspectives affect encounters of others and identities on the personal level. Although this literature is thematically relevant to *A World at Stake* through its focus on injustice and spatial inequality, it corresponds less with a focus on museum experiences and the role of young people in a globalised world.

This has led me to identify with orientations towards political geography and citizenship studies in which young people's rights and responsibilities in an interconnected world are increasingly questioned and debated (Aitken 2001). Katz (2004) investigates empirically how children's play in African contexts are local and grounded yet involve meaning-making through connections to global matters. Ruddick (2003) discusses how less ideal notions of youth and childhood are conceptualised and distributed through political economies. Other contributions, like Aitken et al.'s (2008), aim to question notions of children as passive and lacking agency. The alternative ways that young people have agency and participate is debated within notions of citizenship, especially as, without the right to vote, the political rights of young people are limited (Skelton 2007, 2010). Moosa-Mitha (2005) critically investigates how citizenship can place young people in constrained categories, but children and young people are also discussed by some as potentially being and becoming global citizens (Holden 2000).

The latter point opens up literature that looks at how education curricula and educational interventions can contribute to students' recognition of transnational forms of citizenship, like cosmopolitan citizenship (Osler & Starkey 2003) and global awareness (Gordon et al. 2016). A Norwegian example is Rye's (2013) study of how Norwegian students act as 'global citizens' when they use the Internet to learn about distant places. Rye's study is critical of student's assumptions about what sorts of websites offer trustworthy information about distant places but also demonstrates a critical stance towards the notion of 'the global citizen',

particularly in light of the fact that there is no global state to maintain a global citizenship (Rye 2013).

In response, the current project identifies global awareness as a branch of a long and large tradition of debate on various forms of citizenship and is closely related to global and cosmopolitan forms of citizenship (Linklater 2002). Unlike global citizenship, though, various dimensions of global awareness are being implemented, in particular in American, Canadian and British curricula, and it is considered by many an attainable goal among young students (Burnouf 2004, Klein et al. 2013). I have taken inspiration from Kirkwood's (2001) discussion of definitions of global awareness and, later in this dissertation, I look more closely at three dimensions of global awareness that I found most relevant to students' experiences of *A World at Stake:* 'multiple perspectives on the world', 'knowledge of global issues', and 'the world as interrelated systems'. This allows me to interrogate whether and, eventually, in what ways *A World at Stake* contributes to developing young students' sense of global awareness. As already stated, it also provides an opportunity to contribute to the literature on the potential role of museums in fostering students' sense of global awareness. In the following sections, I clarify how my focus on young students' experiences ties in with a 'critical geography' and social justice agenda.

The literature mentioned thus far shows there are many ways of being critical, but applying the label requires some clarification (Blomley 2006). My approach to being critical follows the similar interest in contributing to a more just configuration of the world that seems to drive much of the critical literature. Although the focus is not always on education per se, disseminating geographical knowledge to a wider public so they are better equipped to contribute to a better world seems to be an interest among many critical geographers (Gordon et al. 2016; Mitchell, K. 2008). This engagement is evident in Don Mitchell's (2008) discussion of how making geographical knowledge more accessible may contribute to improving the lives and conditions of unprivileged people.

The current dissertation focuses on dissemination of knowledge about global poverty and inequality. This implies an emphasis on students' experiences but does not exclude approaching representations in the exhibition more critically. My critical approach should also be seen in relation to a notion of social justice. Global poverty is an injustice to which *A World at Stake* responds. Social justice is thus at the heart of what the exhibition is about, but

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exactly how students relate to and conceptualize social justice is implicated in how representations affect their experiences as well as how they negotiate the meaning of those representations. Human geographers are well versed in the work of representations and how they are performed and negotiated in museums, and I now turn to this literature.

While museums and exhibition practices are not a frequent study object in human geography, there are significant works worth mentioning. Mike Crang (2003, 2010) offers a methodological discussion of different ways to interpret the meanings of displays and museums broadly as sites for community identities. An example from Norway is Stuberg's MA thesis (2006) on the role of narratives in museums in representing the people and landscapes of Sápmi.[6] While Stuberg is primarily concerned with the role of narratives as representations, Crang (2003) points to how the meaning of museum representations depends on audience interaction and interpretation: '[…] we need to think about the range of ways people might interact with and interpret exhibitions, including physical motion, social interactions, inattention as well as attention' (267). More recent non-representational approaches to situated experiences of places and environments have prepared a bridge between landscape and heritage studies (Waterton 2013; Waterton & Watson 2010), and research strategies for the study of affect within heritage sites, including museums, are now more rehearsed (Waterton & Watson 2015). More empirically oriented examples include Waterton and Dittmer's (2014) focus on affective encounters within war memorial sites and exhibitions. A focus on audience experiences is also evident in the work of Bærenholdt (2015) and Bærenholdt & Haldrup (2006), which focuses on the way audiences demonstrate the reinterpretation and a co-creation of sites and museums through, for example, enactments and stagings of historical eras like the Viking Age.

1.7 Towards museum geography

The above research areas within museum studies and human geography have different points of tangency with the current dissertation, and much of the above-mentioned literatures are made relevant in the dissertation through reading and working across them. As a PhD candidate, one often seeks support and confirmation through other scholars' works. For the

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[6] Sápmi refers to a cultural region in northern Scandinavia traditionally inhabited by the Sami people.

current study, it has been a challenge to identify more closely related scholarship. This study's focus on young students' experiences of *A World at Stake* thus represents an original contribution, first and foremost to human geography, but also to museum studies. This is primarily evidenced through the empirical material and how it enables me to connect two scholarly fields. 'Museum geography', however, is still a nascent field (Geoghegan 2010). On the background of the more recent emphasis on space and place in museums, Geoghegan identifies three areas where the contribution of geographers is called for. First, there is an increasing interest in how museums contribute to representing the world, through historical displays as well as through representations of contemporary issues. Second, museums have a role to play in identity formation and the production and legitimisation of place-based identities. Third, the material worlds that are represented by collectors, collecting and collections have been the subject of growing interest among geographers. In sum, museum geography may allow researchers to study key geographical questions of space, place and identity from a new perspective. Beel (2017) adds to the emerging museum geography by showing how institutionalised museum spaces, through social inclusion and community outreach programmes, may foster processes of governmentality. Beel's (2017) focus on the socialisation and empowerment of local citizens is a focus that '[…] seeks to improve society for the better' (460) and is thus closely related to notions of citizenship (Isin & Turner 2014). The current project continues on a citizenship trajectory but takes a more global perspective through a focus on how students' experiences relate to global awareness. Considering this fact and Sections 1.4 and 1.5 together, the current project is prepared to contribute to an emerging museum geography.

1.8 Outline of the dissertation

This dissertation consists of two parts. Part 1 represents the synthesis and is structured as follows: The introduction is followed by Chapter 2, which provides a detailed account of *A World at Stake*, specifically its tasks and premises for participation, as the foundation for students' experiences. Chapter 3 elaborates theoretically on the main concepts of global awareness and experience and includes discussions on the following related concepts: global citizenship, social justice, affect and emotion, mastery and negotiation. Chapter 4 presents papers 1 to 4 in the form of abstracts. The presentation of each paper is followed by a comment on how it developed. Methodologies are elaborated in Chapter 5 and include a

discussion of my background for conducting fieldwork, research design and strategy, combined methodologies and the process of producing different kinds of data in the field. Chapter 6 presents the discussion and conclusion, overall contributions and implications for research and practice. The full text format of Papers 1 to 4 is provided in Part 2 of this dissertation.

2. *A World at Stake* – An exhibition and a game

This chapter provides a detailed presentation of *A World at Stake*, which intends to complement the descriptions of *A World at Stake* in papers 1 to 4. I consider this necessary because it provides the reader with more detailed insight into the nature of the materials and premises for participation that were the foundation for students' experiences and the dissertation as such. The current descriptive chapter starts with a brief overview of *A World at Stake* before going into the details of the exhibition's content.

2.1 A brief overview

A World at Stake was designed by the science centres Experimentarium in Denmark and Jærmuseet in Norway and was launched in 2009 as a scaled-up board game covering 250 square metres (Fig. 1).
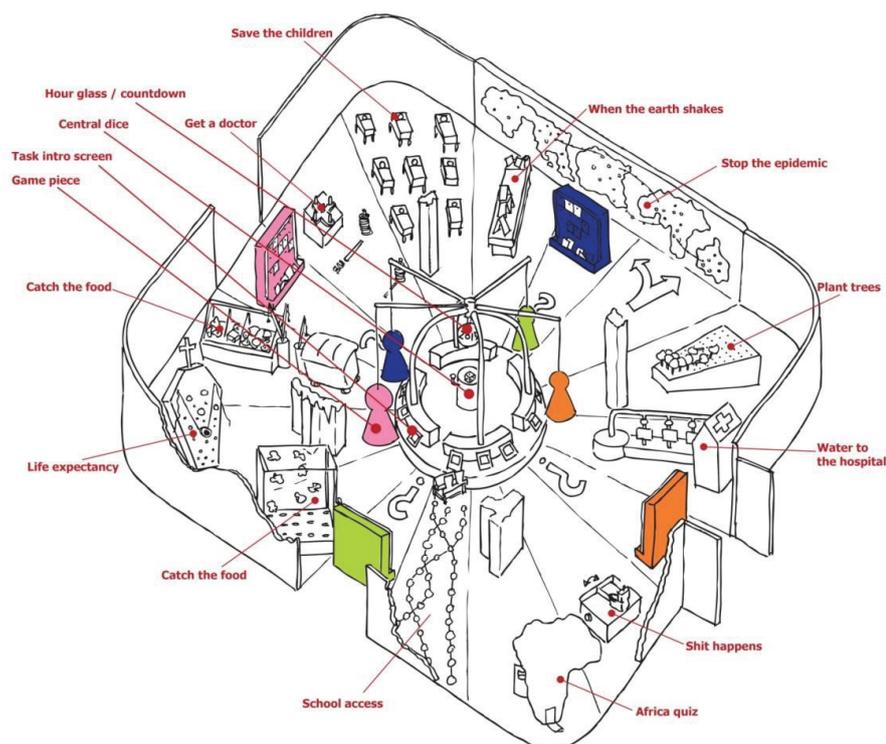
Fig. 1. Conceptual illustration by Experimentarium (2009). Designations translated by the author. The actual exhibition had some variations in arrangement and designations of tasks.

From 2009 to 2014, the *A World at Stake* exhibit circulated within four Scandinavian museums and hosted about 15,000 visitors, including schools and leisure-time visits at each location (Experimentarium in Denmark, Jærmuseet in Norway, Teknikens Hus in Sweden and Glomdalsmuseet in Norway). Each visit organised classes into 4 competing teams. To prepare students for play, a museum educator acting as the game arbiter spent the first 20 minutes explaining game rules and how to undertake 12 hands-on tasks.[7] This included presenting all the content elaborated in Section 2.2 below, although in a more brief and instructive manner. The following 20 minutes involved students playing the game in team constellations. A central die dictated the students' play, and, in some cases, other dice influenced the difficulty of each task.[8] Completion of tasks was rewarded by points, 24 in total, which were in the form of pieces cut out from a 100 cm x 70 cm image. The pieces, or points, were continuously put up on each team's scoreboard (also termed 'home base' by some educators) in a random fashion. When there was 1 minute of playing time remaining, the teams were asked to rearrange their points to form images, an activity that shared many of the same characteristics involved in solving a jigsaw puzzle. The images, which in most cases were left incomplete or unsolved, were the focus of the final 20 minutes, during which the educator elaborated on each team's image and invited the teams' responses. The educator connected the images to 4 key aspects of the MDGs: malnourishment, access to water, education and medical provisions, respectively. While the partially completed images revealed that some teams had scored more points than others, the educator designated the winners randomly. This was a pointed illustration of the fact that *A World at Stake* is an unfair game, reflecting a world of stark inequality and difference. The following sections provide a more detailed account of the exhibition's content.

2.2 Contents - Tasks, chance fields, images and text

The content of *A World at Stake* was organised on a soft 250-square-meter carpet, upon which a board game layout was printed. The board game surface was composed of 16 sections arranged in a circle (Fig. 1). There were 12 hands-on sections, which contained tasks meant to

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[7] I have chosen to apply the term 'educator' throughout the dissertation, even though during students' visits, the educators mostly referred to themselves as 'arbiter'.

[8] I use 'die' to refer to the singular version of dice: one die (singular), two or more dice (plural).

be executed by the students, while the remaining 4 sections represented each team's home base. The home bases also functioned as chance fields, which were symbolised with a large question mark imprinted on them (also indicated in Fig. 1). The following elaborates the tasks and chance fields on the game board in clockwise orientation and focuses on the activities involved and essential text designations. When I describe the tasks' purposes and themes, I use the exhibition's instructions (displayed on separate screens in the exhibition itself) and Experimentarium's document listing exhibition activities as references.[9] I also use these references to indicate which of the MDGs each task referred to.

Stop the epidemic

Original Danish title: Stop epidemien

This section presented a world map configuration, about five metres in width, including a series of red push buttons spread unevenly over three continents (Fig. 2). North and South America were on the left with 17 buttons. Africa was in the central position with about 55 buttons. Europe and Asia were positioned on the right with 37 buttons. The continents seemed stretched to fit a background in ocean blue, and Africa appeared relatively larger than the other two. The purpose of this section was to stop epidemics from spreading by rapidly hitting the flashing buttons. This demanded that students collaborate by organising team members across the map, staying alert for any random flashes appearing on the wide surface. The task was started by hitting a button, and instructions followed on the screen. After about two minutes, a score of 0 to 2 points, depending on students' efforts, was given on the screen.

This task had no reference to the MDGs in the Experimentarium document. However, the task can be linked to MDG number 6: Combat HIV/AIDS, malaria and other diseases; and 7: Ensure environmental sustainability.

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[9] Annex to rental agreement, «Liste over aktiviteter i En verden på spil», unpublished document Experimentarium (2013).

Fig. 2. Photo of the task 'Stop the epidemic'. This and all subsequent photos in this chapter were taken by Flemming Leitorp, Experimentarium (2009), and are used here with kind permission.

Plant a tree

Original Danish title: Plant et træ

This section presented an inclined table with three sections and a series of holes representing different areas with afforestation potential (Fig. 3). A countdown timer was placed on top of the table and was clearly visible to students. The purpose was for students to plant as many trees as possible within one minute. The countdown timer was engaged by one of the students pushing a green button. The trees were then picked up from a small box and spread out over the table, so all students could contribute in 'planting' trees in the holes. The students were instructed to stop planting after the countdown clock had stopped. The purpose was then to see how many of the sections were completed and thus how many forests the team had managed to complete. The points were provided as follows: one completed forest gave zero points; two or three completed forests gave two points. The Experimentarium document referred to MDG number 7: Ensure environmental sustainability.

Fig. 3. Photo of the task 'Plant a tree'.

Water to the hospital

Original Danish title: Vand til sykehuset

This section presented a large construction with vertical tubes running from a horizontal bar down towards a table with five framed images, each with a yellow push button (Fig. 4). The purpose here was to provide enough water to a hospital in a village context. The framed images were scenes from different local environments and represented actors in a village also using water from the same source as the hospital. In order to provide the hospital with enough water, students were asked to close three out of five 'water faucets' connected to each actor in the village. In order to make a choice about which ones to close, students needed to consider the actors and activities indicated by the images and their accompanying designations. The photos of actors and activities were designated as follows (as seen from left to right): 1. 'A farmer using water for washing coffee beans', 2. 'Village merchants cleaning the vegetables so they appear fresh and delicate', 3. 'The water post which is not properly sealed', 4. 'Children who need water to clean their bikes', and 5. 'The water post where villagers get their water'. The installation with the water system was activated by pressing a red push-

button. Water then started running through the transparent tubes and to all actors until a smaller portion of it ended up in a container beside the hospital-like construction indicated by a red cross on one of its sides. Students followed the instructions given on a small screen, which indicated the moment when they could make a choice. This activated five yellow buttons next to each image (or village actor) and required students to discuss the alternatives within the group and make choices by pressing three of the buttons. After a short break, the screen indicated whether students had made the right choices in terms of prioritising which villagers and activities least needed the water. Depending on the results, zero to two points were awarded. The task could activate the whole team, up to five people. The Experimentarium document referred to MDG number 7: Ensure environmental sustainability.

Fig. 4. Photo of the task 'Water to the hospital'

Shit happens
Original Danish title: Lortespillet

This section presented a toilet on top of two balancing tables, similar to the Brio labyrinth game (Fig. 5). The purpose was to navigate a 'turd', in the shape of a small ball, to a sewage treatment plant or a river, thereby preventing it from contaminating streets and public areas.
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The installation was mechanical and involved no electronics or digital displays and was engaged by throwing the small ball into the toilet. The ball would randomly land in either the left labyrinth depicting a residential area with sewage systems, or the right labyrinth depicting a slum area with no obvious sewage system. By depressing the table's left or right side, or its upper or lower edges, the ball could be navigated through the labyrinth and avoid the holes along the way. The labyrinth with the drainage system was easier to handle and provided two points if students managed to navigate the ball past the holes and into the sewage plant. The labyrinth with no sewage system was more difficult to manage, and the ball disappeared into holes more easily. If the ball made it to the river, the activity only provided one point to the team. Balancing the table, and thus the ball, activated one or two students. The Experimentarium document referred to MDG number 6: Combat HIV/AIDS, malaria and other diseases.

Fig. 5. Photos of the task 'Shit happens'.

Africa quiz

Original Danish title: Afrika quiz

This section was shaped like a large map of Africa and was over three metres high (Fig. 6, Left). The map was covered with a collage of images. The quiz was organised through a monitor mounted on a separate stand in front of the map and two monitors installed at eye height on the map. By pressing a green button, the purpose was given on the monitor in the front: 'What do you know about the world around you? There are over 850 million people in

Africa. Find out what you know about Africans' daily life. Press the green button. You have one minute to answer as many questions as possible'. The quiz was then initiated by pressing the green button again. Questions were provided by the front monitor, and four alternatives were given on the map, each with its own button. This required a student to read the questions out loud while one or two others read the alternatives and choose an answer by pressing a selected button. As soon as the answer button was hit, another question was provided by the front monitor. The questions came in random order each time the quiz was started. A selected list of questions and response alternatives is given below:[10]

What does malnourishment mean?
-Being less than one metre tall, being very fat, being very thin, being albino.

 An African has 6 kroner a day for …?
-Petrol, food and clothing, toys, massage

In Africa, 10-year-old children can make pocket money as…?
-Paperboy, shepherd, miner, dog walker [hundelufter]

 The most common disaster in Africa is…?
-flood, earthquake, draught, forest fire

How do you avoid malaria?
-mosquito net, fly catcher, fly paper, honey

While you were taking this test, how many people died from hunger?
-5, 25, 125, 1050

Many African children die because they lack…?
-bicycle helmet, life jacket, child car seat, vaccine/medication

Who rarely gets a chance to go to school?
-Girls, babies, boys, old people

What does Africa look like?
-Alternatives were given through four visual sketches of the continent in monochrome colours.

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[10] The texts are translated from Norwegian to English.

There are 206 million people in Africa who cannot:
-Comb their hair, fetch water, make their beds, wash themselves

The computer responded to the students' answers consecutively by indicating either 'correct' or 'wrong' answer. In the latter case, the correct answer was not indicated before a new question was presented. The front monitor ended the quiz after one minute and presented how many points were scored; 0–5 points gave no points to the home base, 5–10 gave 1 point for the home base, while 10 or more points gave 2 points to the home base. No reference to MDGs was noted. However, the questions from the quiz can be related to several MDG goals, most noteworthy:

Goal 1: Eradicate extreme poverty and hunger

Goal 2: Achieve universal primary education

Goal 3: Promote gender equality and empower women

Goal 6: Combat HIV/AIDS, malaria and other diseases

Goal 7: Ensure environmental sustainability

Fig. 6. Left: Photo of the task 'Africa quiz'. Right: Photo of the task 'Access to school'.

Access to school

Original Danish title: Hvem kommer i skole?

This section consisted of circle-shaped boards on the floor aligned in three rows, each indicated by 10 red, purple and yellow circle-shaped boards with designations on them (Fig. 6, Right). The rows formed three 'paths' to a school desk with an old-fashioned design. As the section's title indicates, the purpose here was to access school by navigating up to 3 team members through the obstacles indicated on the floor boards. One team member sat down on the school desk where she or he had access to a box with three dice in red, purple and yellow colours. The dice were rolled by hitting the spring-loaded box. The team member by the desk would then read out the numbers, which indicated how many steps each of the other three members could advance. Upon landing on a field, the three team members would read out the obstacles written on the floor. Examples of designations on the floor are:

'Go back to start! Your parents cannot afford a school uniform and books, so you cannot go to school.'

'Hit again! The country has educated more teachers. You can now attend lectures.'

'Wait two turns! You are ill from malaria and it takes a long time before you can return to school.'

Go back to start! You are number seven among your siblings and cannot go to school.'

It should be noted that students faced these designations to a varying degree. For example, the dice directed students to advance from one to six spaces, meaning that students skipped from two to five boards with designations on them. However, if three team members were engaged on the yellow, red and purple paths, they would get to read about one third to half of the 30 designations. A complete list of designations is provided in Appendix 5.

The team had five attempts with the dice to advance to the goal and the final floor board stating 'Congratulations! You can go to school.' One student reaching the goal provided one point to the teams' home base, two students gave two points, while three students gave three points.

The Experimentarium document referred to MDG number 2: Achieve universal primary education, and MDG 3: Promote gender equality and empower women.

Catch the food

Original Danish title: Fang maden – Hvor meget mad kan du fange?

This section represented a transparent acrylic container large enough for up to two students to enter (Fig. 7, Left). Powerful wind fans were mounted under a perforated floor. Inside, there were foam tokens representing pieces of food. By stepping inside and pressing a button, the fans produced a powerful wind current swirling up the pieces of food. With one or two students inside the container, the purpose was to catch as many food tokens as possible within one minute. The difficulty came from chaotic movements of the tokens in the turbulent air. The air also made long hair or loose clothes like jackets wave around. The transparent container encapsulating students and their movements, and the funnels making a heavy noise, positioned the students in a display mode that was inviting to other students and easily attracted attention from team members and other teams. Upon finishing, the tokens were counted, and points were provided accordingly. Zero tokens provided zero points. 1–10 tokens provided 1 point to the team's home base. More than 10 tokens provided 2 points.

Fig. 7. Left: Photo of the task 'Catch the food'. Right: Photo of the task 'Life expectancy/How old do you become?'

According to the Experimentarium document, the task illustrated MDG number 1: Eradicate extreme poverty and hunger. The exhibit instructions highlighted that: 'acquiring food demands energy, courage and luck. There is not much of it, so you eat what you can get'.

Life expectancy/How old do you become?
Original Danish title: Hvor gammel bliver du?

This section represented a two-meter-tall coffin-shaped box, tilted almost vertically (Fig. 7, Right). By using a pulley system with two threads, the purpose was to reach a high age by navigating a small ball from the bottom, upwards towards a higher age level. Different sections with holes represented different types of health challenges, and the students needed to find a path through these and avoid letting the ball fall down, thereby determining their life expectancy. Table 1 shows a list of the health challenges designated on the coffin.

Table 1. A list of designations provided on the coffin. The ball starts on the bottom line, designated 'Start', and is moved upwards in the direction indicated by the arrow. Designations are translated from Norwegian.

List of designations	Score designations	Age
Canteen food, Alcohol, Traffic, Age		
Abuse, Pneumonia, Heart disease, Smoking, Cancer, Diabetes	0–10 years 0 point 10–60 years 1 point 60–100 years 2 points	
War, Salmonella, Suicide, Cholera, Draught, Snakebite, Polio, Anorexia		
Dangerous work, Meningitis, Liver inflammation		
Measles, Yellow fewer, Aids, Earthquake, Infections		
Flood, Malaria, Landmines, Polluted drinking water		
Too little food, Death upon birth, Typhus, Diphtheria		
Start		

Upon facing this task, the students needed to throw a separate die with two outcomes, either black or white. The black faces of the die meant the team needed to use a smaller ball, which fell into the holes more easily. The white faces of the die allowed the team to use a larger ball,

which was easier to navigate past the holes. The team then designated one person for each of the pulleys. Pulling the right pulley moved the ball up and to the right, and pulling the left pulley, moved the ball up and to the left. In order to navigate the ball, the two students first needed to agree on a path and direction for the ball (where it seemed less likely to fall into any holes) and then coordinate their physical efforts to stear the ball up, down, left, right, or a combination of these. The area where the ball eventually fell down represented an approximate age, from which the students could read off their points; 0–10 years, 0 points; 10–60 years, 1 point; and 60–100 years, 2 points (Table 1.). The Experimentarium document referred to MDG number 1: Eradicate extreme poverty and hunger, and MDG number 2: Achieve universal primary education.

Provide food for the family
Original Danish title: Skaf mad til familien!

This section was represented by a garbage bin and a freezer, both with pieces of plastic food inside (Fig. 8). The activity in this task was to use a fishing rod to catch pieces of food (via magnetic attraction between the rod and food pieces). Before engaging in the task, students hit a black and white die (the same as in the previous task on 'life expectancy'). The black faces of the die dictated that students use the fishing rod in the garbage bin, where the food pieces were less likely to stick to the magnet. The white faces of the die dictated that students use the fishing rod in the freezer, where the food pieces could be obtained more easily. In both cases, only one team member could use the fishing rod at a given distance from the freezer or the bin, while the others could watch and help by pointing to where it was likely to catch food. To obtain 1 point, the team needed 10 pieces of food or more. To receive 2 points, they needed 20 pieces or more. This was the only task that did not have a time component defining when to stop the activity. The students needed to figure out for themselves when to stop fishing for food. According to Experimentarium the activity illustrated the point that food can be harder to obtain in developing countries than in developed countries.[11]

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[11] Annex to rental agreement, «Liste over aktiviteter i En verden på spil», unpublished document Experimentarium (2013).

No reference to MDGs was noted. Given its focus on unequal access to food, it can be linked to MDG number 1: Eradicate extreme poverty and hunger

Fig. 8. Photo of the task 'Provide food for the family'.

Help the babies/Save the children
Original Danish title: Red børnene

This section represented eight small beds arranged in a row, and each bed had a baby doll in it representing infants (Fig. 9, Left). The purpose of this activity was to distribute food, comfort or medicine to the babies as a response to their crying. To get to the right baby, a trolley was pushed sideways and, by using a magnetic pen, the students could choose food, comfort or medicine as a 'treatment'. The students could collaborate to observe the babies and agree upon which baby to prioritise and which treatment to use. They were told by the educator that the number of treatments was limited, so they needed to consider carefully how they used them. The activity was engaged by pushing a start button, and a screen indicated when to start. Soon after, the babies started crying in random order. This engaged the whole team in observation, listening to the babies' crying, observing the accompanying flashing lights and trying to figure out which treatment to provide to which baby. After their resources of food,

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comfort and medicines were distributed, the computer presented a count of how many babies they had saved and provided a score from 1–3 accordingly. This activity engaged students to try out, through experimenting, how they should distribute their resources. They were perhaps driven by the experience that if you play a game long enough, a logic will surface and give you hints about what to do and what not to do. In this activity, however, there was no hidden logic to be revealed. As one educator from Jærmuseet explained, the point was to get students to think and try to find out how to solve the task, and to illustrate the importance and difficulty of prioritising limited resources in a critical situation, such as infants in need of help.[12] The Experimentarium document referred to MDG number 4: Reduce child mortality

Fig. 9. Left: Photo of the task 'Help the babies/Save the children'. Right: Photo of the task 'Get a doctor'.

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[12] Personal communication with Helene Larsen from Jærmuseet 21.08.2013.

Get a doctor

Original Danish title: Skaf en læge!

This section represented five Barbie dolls dressed as doctors or nurses, two circles mounted at different distances to the doctors and a set of rings of the type used in the quoits game (Fig. 9, Right). The purpose was to 'get' as many doctors as possible by targeting them with the rings. The throwing distance was decided by hitting a separate black and white die. The white faces of the die allowed the students to be positioned closer to the doctors on the circle designated 'Stavanger, Norway'. The black faces of the die forced the students to be positioned on the circle further away, which was designated 'Sierra Leone, Africa'. The Sierra Leone circle was located about 4 metres from the 'doctors' and thus gave fewer hits and fewer points. Depending on how they organised the throwing of the rings, the activity engaged one to five students. In most cases, there was one student throwing the rings and the rest would stand around and pay close attention to the outcome. The team was awarded one to five points, one for each doctor they encircled. The Experimentarium document referred to MDG number 5: Improve maternal health.

When the earth shakes

Original Danish title: Når verden ryster

The section 'When the earth shakes' consisted of a table, and the purpose was to build a house from rectangular building blocks on it (Fig. 10). Two types of materials were available: White-toothed cardboard that interlocked when pushed together or brown cardboard without locking mechanisms, which were more difficult to use. To determine which one to use, students hit a separate die with black and white sides, one colour for each type of material. They would then pick up a series of building blocks and spread them out on the table so the whole team could access them. The building process was engaged by pressing a separate countdown clock. The countdown clock was clearly visible to all students and started on 60 and counted down 1 minute. Students could then choose to cooperate within the team to build a house or attempt to make one house each. The countdown clock stopped after one minute of intense construction, and the students' efforts were put to the test when the table wobbled, simulating an earthquake. 'Houses' that were still standing after the 'earthquake' earned the team points, either one point for one floor, or two points for two floors. Before moving on to

the next task, this and every section that needed tidying was cleaned up by the students so they would be ready for the next team.

Fig. 10. Photo of the task 'When the earth shakes'.

No reference to MDGs was noted for this task. Given its focus on unequal access to resources, it can be linked to MDG number 1: Eradicate extreme poverty and hunger.

Background images

As can be seen on most of the photos of the tasks above, the exhibition room was framed with background walls with images mounted on them. There were 8 of these illustrative images. I choose not to go through these in detail due to their limited significance for students' experiences. Throughout the one-hour session, these were usually not commented upon by the educator, and the students were not required to attend to these in order to solve tasks. Due to the limited role of these images, I did not prioritise using them in any detailed analysis. A descriptive list, however, is provided in Appendix 3.

Chance cards

The four sections where the teams' home bases were located also had a question mark imprinted on them (Fig. 1). If a team landed on one of these sections, it received a chance card from the educator. It was read out loud so the team members would get the message, and the educator would pay attention to see if the students followed the instructions on the chance card. It could be tempting for some students not to do so if, for example, it instructed teams to remove points from their home base. The chance cards also put the students in imaginative contexts related to the theme of global poverty and inequality. Here are some examples:

Chance card 1:
Military superiority!
You have military superiority and threaten one of the neighbouring countries (i.e. teams).
Remove one point from one of the other teams.

Chance card 2:
Better education!
You have been given new textbooks and the quality of the teaching is good.
The next time you cannot solve a problem, you can still receive one point.

Chance card 3
Father is sick!
The hospital does not have an ambulance. You have to find someone in the village who can drive him there.
Move back one space and solve the task there.

Chance card 4
You are going to have a baby brother. A doctor helps your mother during the birth.
Both she and the baby have survived the birth. Move forward two spaces.

A complete list of the 29 chance cards is provided in Appendix 2.

2.3 Formal and informal game rules

The formal game rules in *A World at Stake* were announced explicitly by the museum educator during the first 20 minutes. Although not used in the exhibition, a printed version of the rules was mounted on the wall by the entrance in an A3-sized frame (see Appendix 4). To illustrate the instructive style in which these rules were communicated, the following paraphrases the educators and the printed game rules in a narrative form:

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Participants are divided into 2–4 teams. Each team gets a game piece (checker) that corresponds to the colour of their home base. To decide who starts, teams take turns throwing the central die (on the podium). The team with the highest number on the die starts playing by moving their game piece from their home base to the corresponding section. The game is played in a clockwise direction. Completed activities provide points in the form of puzzle pieces that are put on the home bases. If a team lands on a section with a question mark, the text is read out loud to the whole team and they follow the instructions. The game begins when the timer is engaged by the arbiter and ends after 20 minutes and 15 seconds. One minute before the time is up, the arbiter will blow a whistle. This gives the teams one minute to complete their tasks and attempt to solve their puzzle.

While the rules listed above were clearly stated, some informal rules and decisions were randomly imposed by the educator during game play. For example, if a station did not work, or if a team found that a task was occupied by another team, the educator would direct players to hit the central die again to find a new task. Or, if students attempted to cheat in their count of points, if they attempted to solve a task in a different way than instructed or if they failed to 'clean up' and make a task ready for a subsequent team, for example by putting the rings back ('Get a doctor') and the trees in the box ('Plant a tree'), the educator could 'punish' them by removing points from their home base. These acts depended on the educator's personal initiative and to some extent on their creativity but added a noteworthy element of surprise and unpredictability to students' experiences. Perhaps the most important of these informal rules was expressed through the seemingly random determination of the winners of the game. While the young students probably assumed, following the logic of many other games, that whoever scored the most points would win (as is also stated in the printed game rules), this was usually not practised by the educators. Instead, most educators seemed to determine the winner by choosing the educator's favourite colour (for example by pointing to the team with the orange home base and checker). Such informal game rules, or rather random outcomes dictated by the educator, contributed to students' experience of *A World at Stake*.[13]

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[13] While the majority of the content described in Section 2.2 appears accessible to a young audience and thus inclusive of a wide range intellectual levels, it should be noted that the exhibition was not free from physical barriers. For example, the exhibition was not adapted to aid people with physical handicaps, like wheelchair users or visually impaired people.

2.4 Concluding comment

This chapter has aimed to provide the reader with an overview of the exhibition as the basis for students' experiences. The number of words required to describe the exhibition gives an impression of the number of details students were exposed to over a relatively short time. This should not lead to an underestimation of the different ways that students' embodied participation contributed to the experience and thus to what the exhibition communicates more broadly. More of these engagements will be elaborated in Section 5.5.3. In the next chapter, I elaborate the theoretical dimensions of the two main concepts in the dissertation: experience and global awareness.

3. Experiences for global awareness

'Experience' and 'global awareness' are the two main concepts in this dissertation. They are central to the main research question presented in Chapter 1; hence, this chapter elaborates the two comprehensively. The first main concept, global awareness, is elaborated through notions of 'citizenship' and 'social justice'. The second main concept, experience, is elaborated through the concepts of 'mastery', 'affect and emotion' and 'negotiation'.

3.1 Global awareness

In this section, I start by situating global awareness in notions of citizenship before focusing in on global awareness. In order to capture broad aspects of citizenship, I turn to a recent definition by Isin and Turner (2014), which represents an instructive perspective: 'Our best offer is to define citizenship as an institution mediating rights between subjects of politics and the polity to which these subjects belong' (1). Isin and Turner explain that an 'institution' might imply an organisation but also implies a process through which something is '…enacted, created and rendered relatively durable and stable, but still contestable...'. 'Subjects of politics' include all legal and extra-legal official and non-official citizens (Isin & Turner 2014, 1–2). The term 'polity' is usually defined by state legislation but may also include other sub-national or international entities that link up internationally. Building on Isin and Turner's definition, the next section introduces transnational notions of citizenship, also referred to as cosmopolitan or world citizenship.

The idea of cosmopolitan or world citizenship is historical and originated in ancient Greece around 400 BC (Linklater 2002). A little later, the Stoics of the Greco-Roman world considered themselves as 'cosmopolites' or citizens of the universe. Later still, Kant (in the Enlightenment) used the concept of 'world citizenship' to positively promote moral obligations between members of separate sovereign states (Linklater 2002, 317). In recent decades, there has been a revival of ideas about cosmopolitan/global citizenship. At the turn of the millennium, Dower (2000) writes,

> …prompted by the increasing recognition that global problems of poverty, environmental degradation, human rights abuses and widespread international and intranational violence, require individuals to exercise global responsibility and to do so through effective institutions,

the idea of world citizenship has increasingly been invoked by some in their attempts to exercise global responsibility and to encourage others to do so as well. (553)

Along with increasing globalisation and the accompanying notion of global awareness, there has been a growth in transnational political institutions, which was particularly boosted after the creation of the United Nations in 1948. Some examples include the 'Universal Declaration of Human Rights' (United Nations 2017c), 'Convention on the Rights of the Child' (United Nations 2017a), and 'International Court of Justice' (United Nations 2017b). These conventions and agreements are institutions that, to some extent, regulate citizen's rights and responsibilities beyond national borders and may be regarded as pillars in global citizenship. The other pillar is a moral argument originating in antique political culture that, regardless of legal citizenship and belonging, we are all humans of equal value, and responsibility for the preservation of human dignity is imperative (Banik 2014). More recently, it is argued that the concrete global challenges mentioned by Dower (2000) and reflected in the UN's Millennium Development Goals may not be met within the framework of the nation states. Rather, to contribute positively to their agendas requires global awareness, moral responsibility and a willingness to take actions in solidarity (Linklater 2002).

According to Linklater (2002), there are two counter-arguments against the idea of cosmopolitan citizenship and, particularly, the conception of 'global citizenship'. First, there is no global government and consequently there can be no 'global citizenship' with specific member rights and duties. The second counter-argument follows from the first; since there is no global government, many people find the concept of 'world citizen' faulty and may not feel any obligation in support of a global humanity. For those who may not feel such obligation, the term 'global responsibilities' becomes less meaningful (Dower 2000; Linklater 2002). That said, humankind has a history of shared responsibilities, solidarity, helpfulness and care (Banik 2014). Global challenges are thus reflected in many states' foreign affairs policies. Similarly, many non-governmental organisations (NGOs) and international/trans-national institutions, such as the UN and the World Trade Organization (WTO), represent institutionalised frameworks for a citizenship that transcends national borders. Such institutions make it relevant, meaningful and practically possible for citizens to think and act in response to global challenges beyond the nation-state. Global citizenship appears as a contested yet meaningful term because it entails a vision of solidarity and responsibility for the future of human kind. The connotation of a non-existent global state (through which

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citizenship is performed) makes it, however, a challenging concept to apply. I hence turn my attention to the notion of global awareness. Global awareness characterises citizens who are alert, knowledgeable and consider themselves to be, to some extent, responsible and willing to act in solidarity with a greater humankind, that is citizens who consider their citizenship to be not only national but also transnational (Burnouf 2004; Merryfield 2008). While young people have rights to participation, political influence as well as moral obligations, they do not, like most adults, have a global right to vote (Kallio & Häkli 2011; Staeheli et al. 2013). Global awareness thus seems to escape some of the problematic connotations of a global state seen in global citizenship and is, in principle, less sensitive to questions of autonomy defined through age and the right to vote.

Early definitions of global awareness are ascribed to Robert Hanvey and his essay 'An attainable global perspective' (1976). The essay describes five dimensions of global awareness, here paraphrased from Burnouf (2004):[14] '[…] perspective consciousness, state-of-the-planet awareness, cross-cultural awareness, knowledge of global dynamics, and awareness of human choices.' Although Hanvey's essay originally pointed to a 'global perspective', it seems commonly agreed that his work defined the term 'global awareness' (Gibson et al. 2008; Kirkwood 2001). The main aim of Hanvey's notion of global awareness was to emphasise that education must play a vital role in '[…] fostering more global visions about environment and society' (Klein et al. 2013, 19). The concept targeted American elementary and secondary educators, and Hanvey hypothesised that even though every child has a different disposition and will respond in different ways, everyone's capacities within these dimensions could be developed through education (Hanvey 1982). However, Hanvey was clear that his combination of dimensions did not necessarily represent an ideal set of dimensions for how to attain the goal of educating students about global awareness. This perhaps explains in part why there have been many attempts by scholars to refine the concept without anyone yet seeming to gain a wide appreciation (Burnouf 2004). Kirkwood's (2001) analysis of the ambiguous definitions of global awareness demonstrates that the differences and incongruities that have appeared since Hanvey's work tend to be idiosyncratic rather than substantive. Kirkwood (2000), hence, identifies four major themes that recur in all definitions

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[14] Page numbers were not given in the source.

of global awareness: [acknowledgment that individuals represent] 'multiple perspectives' of the world, 'comprehension and appreciation of cultures', 'knowledge of global issues' and 'the world as interrelated systems' (14).

A World at Stake undoubtedly addresses global challenges and the need for global perspectives, which makes the exhibition an arena for educating about global awareness. It does so by combining state-of-the-world issues (global poverty and inequality), participatory approaches and a general intention to encourage a rethinking of the world (as stated in the press release cited in Chapter 1). To fully account for how *A World at Stake* can develop students' sense of global awareness, I continue developing this theoretical framework and, with inspiration from Kirkwood's discussion, look more closely into three of his dimensions: multiple perspectives on the world, knowledge of global issues and the world as interrelated systems. I find these most relevant to students' experiences with *A World at Stake.*

3.1.1 Multiple perspectives on the world

The dimension of multiple perspectives on the world is relevant to *A World at Stake* through the different roles and perspectives students were introduced to during their experiences, for example solving tasks as a Global North or Global South citizen interchangeably. Multiple perspectives on the world involves a recognition that one's own view of the world is subjective and is unlikely to be universally shared or necessarily right: the perspectives of others can be of equal value and importance (Burnouf 2004). This dimension is derived from Hanvey's (1982) 'perspective consciousness', which he described as 'The recognition or awareness on the part of the individual that he or she has a view of the world that is not universally shared, that this view of the world has been and continues to be shaped by influences that often escape conscious detection, and that others have views of the world that are profoundly different from one's own' (162). To Hanvey, this was an important first step towards a more global perspective because recognising that one's own worldview is one of several alternatives suggests that it can be renegotiated towards a different understanding. Hanvey focused on the ability of students to '[…] imagine how people elsewhere would feel and to believe that those have validity (given that cultural context) and are not just different' (Klein et al. 2013, 21). In this respect, Burnouf (2004), citing Haavenson (1998–1999), argues that when taking a global perspective, a pluralistic view is called for, which involves encouraging an appreciation for beliefs, customs and values that are different from one's own.

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Merryfield and Subedi (2001) have added critical aspects to this dimension and argue that whether people regard their own culture as taking place at the margins or at the centre of world history is crucial. They propose that histories of colonisation and environments where differences such as skin colour, race, class and belonging are used by a dominant party to oppress or marginalise the 'other', create significant differences between students in terms of the ability to develop perspective consciousness: 'The qualitative differences are profound between a double consciousness that develops as a survival skill because one is marginalised or abused within one's society, and a perspective consciousness that develops to understand the "other" as an academic exercise in cross-cultural awareness' (Merryfield & Subedi 2001, 281). They suggest that students with privileged backgrounds, for example in the Global North, will need more aid in developing perspective consciousness because their privilege has protected them from situations that would otherwise force them to examine events and issues through viewpoints of people different from themselves. It is likely that most students in *A World at Stake* find themselves in a privileged category and so need more or extensive rehearsal to develop multiple perspectives on the world. For the sake of clarity, later in this dissertation I continue to use Kirkwood's (2001) term, 'multiple perspectives on the world', but this dimension is also referred to by some as 'perspective consciousness'.

3.1.2 Knowledge of global issues

This dimension is most evidently reflected in *A World at Stake* as an initiative that put global poverty and inequality on the agenda for a high number of school visits. Knowledge of global issues, or 'state-of-the-planet awareness' as Hanvey (1982) termed it, involves '[…] comprehension of prevailing world conditions and developments, including emergent conditions and trends, e.g. population growth, migrations, economic conditions, resources and physical environment, political developments' (163). This dimension demonstrates the need for exposure to and knowledge of 'current affairs' occurring elsewhere than the places people occupy on a day-to-day basis. This includes an in-depth understanding of global issues such as migration, economic inequalities and depletion of resources. As Hanvey (1982) suggests, a great deal of learning about the world comes through media representations. While exposure to the current state of affairs in distant areas represents an important first step, Burnouf (2004) adds that as global learners, children need to be made aware that such world concerns affect them as well. Global poverty and inequality, for example, should not be limited to a distant

problem. Knowledge of global issues should also involve assessing the causes of issues like global poverty and what commits groups and individuals across countries and regions to care and respond (Case 1993). This necessitates the next dimension.

3.1.3 The world as interrelated systems

This dimension resonates with *A World at Stake*'s general call to respond to global poverty and inequality, and the idea that responsibility comes from recognising the world as interconnected and interdependent. The world as interrelated systems arises from Hanvey's (1982) term 'knowledge of global dynamics', which he defined as '[…] theories and concepts that may increase intelligent consciousness of global change' (165). Hanvey was concerned with the speed and urgency of global changes that individuals seem to face. He talks about 'intelligent consciousness' as a way of comprehending unanticipated consequences of human effects on the environment as seen through, for example, excessive waste and pollution. More recent literature has turned to notions of interconnections and has applied them to describe globalisation and global connections and the ways people are interrelated across country borders (Gibson et al. 2008). Those interconnections are typically defined as economic, political, ecological and technological. An example is offered by Gibson et al. (2008), who propose that knowledge and understanding of the interconnectedness and interdependence of the world are important components of global awareness. Related to global poverty, this dimension could turn attention to the structural conditions that are behind the uneven distribution of goods and opportunities, such as trade agreements and foreign tax policies (Dicken 2004).

As may be apparent from elaborating these three overlapping dimensions, global awareness attempts to comprehend a broad perspective on world conditions, and critics may find it too broad. Definitional ambiguity is hence one of the challenges facing the concept (Kirkwood 2001). My main response to that is that global awareness is intended to be applied in educational initiatives through a high degree of sensitivity towards rapidly shifting world conditions. At the outset, Hanvey proposed that his set of dimensions should not be perceived as a fixed solution but rather a way of thinking that should remain sensitive, and to some degree flexible in a fast changing world, yet also sensitive to the different contexts in which global awareness is to be taught (Hanvey 1982).

3.1.4 Social justice and education – Towards a definition of global awareness

Here, I aim to address some of the contentions mentioned in the previous section by, first, suggesting a more explicit link between global awareness and social justice. Second, I expand on the intended role of global awareness within education. Finally, I remind the reader of what I find the most promising definition of global awareness for this dissertation.

I mentioned in Chapter 1 that social justice is at the heart of what *A World at Stake* is about and thus is implicated in students' experiences and negotiations. Here, I suggest that global awareness could benefit from being associated with a more distinct agenda of social justice, restricting awareness to matters of social justice, or what Kuh (2008) defines as 'difficult differences'; '[…] racial, ethnic, and gender inequality, or continuing struggles around the globe for human rights' (10). To these difficult differences we may add the social, cultural and political differences that can be associated with global poverty. This imposes a normative stance on what we need global awareness for and suggests that social justice can be used as a point of departure for how we choose to understand the world and, thereafter, how we choose to engage in it (after Mels & Mithell 2013). Connecting individual global awareness with social justice also emphasises a moral interconnectedness across national borders, which opens up individual ethical considerations independent from the formal legislative systems of nations and international courts. Another way to emphasise the geographical perspective of global awareness is to link the term with spatial injustice, which Smith (1994) describes as the '[…] spatial disparities in people's life chances' (5). Taking up disparities involves a comparative look across nations and continents to reveal social, economic and cultural differences. While identifying disparities and differences (or spatial injustices) can be an important first step, global awareness should involve more than pointing to differences. Developing global awareness among students of the Global North should involve critical components, such as attending to the nature of those differences, the sources through which we learn about them (e.g. through statistics or observations), how they are composed, what their causes can be and what are reasonable responses to those inequalities.

Second, global awareness is expected to be put into practice, and hence developed, within educational contexts and, therefore, education is a recurring element in most definitions (Kirkwood 2001). Also, an individual's gradual acquisition of the dimensions of global awareness are often assumed to work in synergy, with each one informing the other, and are

often stimulated through interdisciplinary approaches. It is also useful to note that global awareness is a notion that, over time, aims to become an incorporated part of daily cognition and judgement (Merryfield 2008). This means global awareness is not achieved through a list of what to do and what not to do but presents itself as a disposition that is attained gradually through repetition and rehearsal, where a defined state of global awareness is not necessarily easy to pinpoint. Or, as Hanvey (1982) states, '[…] a global perspective is not a quantum, something you either have or don't have' (162). A 'traditional' approach to knowledge, that is 'filling' students' minds with facts and information that they are simply asked to memorise and reproduce, in Burnouf's (2004) opinion, does '[…] nothing to promote global awareness'. What this suggests is that providing more knowledge about distant people and places is not necessarily helpful to creating awareness. Case (1993) asserts that developing an appropriate filter or a moral lens through which to view global interactions may be more appropriate than acquiring extensive information about trivial dimensions of foreign cultures.

Finally, and to recapitulate from Chapter 1, Merryfield (2008) suggests global awareness should be defined as '[…] habits of the mind that foster knowledge, interest, and engagement in global issues, local/global connections, and diverse cultures' (363). While Merryfield asserts that these 'habits of the mind' should be perceived as a character trait, or a virtue in development, I suggest this development should also entail a focus on social justice (Mels & Mitchell 2013), including difficult differences (Kuh 2008) and spatial injustices (Smith 1994).

In this dissertation, and against this background, the students' experiences with *A World at Stake* represent the basis for the possibility of developing students' global awareness within a framework of social justice, difficult differences and spatial injustices. The second part of this chapter therefore elaborates a concept of experience related to learning contexts such as the museum.

3.2 Experiences within learning contexts

The young students' encounter with *A World at Stake* generates a wide range of experiences. Some of these can be better understood by using John Dewey's (1916/1968) theoretical elaboration. Dewey's educational perspective is relevant for the learning context offered by *A World at Stake* and, in the following sections, I add to Dewey's work by including the concepts of mastery, affect and emotion and negotiation.

Dewey (1916/1968) summarises the nature of experience as follows: 'When we experience something we act upon it, we do something with it; then we suffer or undergo the consequences. We do something to the thing and then it does something to us in return' (139). This passage encompasses Dewey's argument that experience is composed of an active side and a passive side and that they occur in a particular combination. The active element involves both trying and getting involved in something through a phase of activity. Getting involved does not necessarily make much sense in itself, but it is integral to experience and therefore an important part of a process of meaning-making. The passive side emphasises the temporal aspects of experience, the 'undergoing', the continuous events that follow from an activity, the consequences of acting or interacting with something. If the consequences of interaction are significant enough, a change can occur within us. Learning, then, according to Dewey (1916/1968), is defined by the change that is made within us as a result of experiences.

In theorising experience, Dewey is concerned with action and the observation of consequences. An activity that passes without an individual noticing it is not an experience but merely something going on haphazardly and may have little or no meaning. Experiences involve perceiving something happening and making connections to that happening, observing either what caused it to happen or registering the consequences of what just happened. To learn from experience, Dewey (1916/1968) writes, is to; '[…] make a back and forward connection between what we do to things and what we enjoy or suffer from things in consequence. Under such conditions, doing becomes a trying; an experiment with the world to find out what it is like; […] the undergoing becomes instruction—discovery of the connection of things' (140). Dewey's notion of experience fits with the ways *A World at Stake* invited students to engage in tasks demanding various inputs and efforts. Students observed various outcomes from these efforts, which affected their further engagements in the game.

3.2.1 Identifying relationships and making connections

According to Dewey, the process of identifying relationships and making connections is integral to making meaning (1916/1968, 143). Identifying relationships is part of recognising what things are and part of meaning-making. We recognise a chair, for example, through the qualities that give it a purpose and by making connections to the specific people who use it, which involves an element of judgement. In the context of experience, Dewey seems to use

judgement as an expression for identifying relationships and making connections. The quality of experiences is differentiated by degrees of meaning-making, and with regard to this, Dewey says there is a tendency among people to be content and settled with some meaning. This may leave meaning that is not fully perceived (or something partly perceived) to be favoured over more vital experiences that require the use of judgement and induce a desire to find connections and relationships. In other words, what we should desire are experiences that establish meaning through a process of identifying relationships and making connections.

3.2.2 Experiences and reflection

For experiences to create meaning, some element of thought needs to be present. Dewey (1916/1968) equates thought to reflection and defines its place in experiences as '[…] the judgement of the relation between what we try to do and what happens in consequence' (144–145). The degree of reflection can be illustrated through a first-level kind of experience that involves a method of trial and error, and repeated attempts until something works. Acting and observing the consequences of an action does not necessarily reveal how a specific interrelationship works.

In the second level of experience, judgement of relationships is more engaged through investigating how activity is attached to outcomes: '[…] we push our observations farther. We analyse to see just what lies between, so as to bind together cause and effect, activity and consequence. This extension of our insight makes foresight more accurate and desirable.' (Dewey 1916/1968, 145). At this second level, the quality of the experience is raised through reflection, so as to represent a 'reflective experience'. Experiences on this level involve thinking in terms of establishing connections between something we do and the consequences that appear. Becoming aware of consequences brings attention to matters that lie ahead of us. This way of making connections from experiences is evident at a very young age. Infants, for example, recognise the consequences of actions, and once they identify regularities, they start to expect or foresee outcomes (Aitken 2015). For Dewey, thinking involves establishing connections and comprises an intelligent component of experiences. It is what makes it possible to act with an end in view. Dewey's approach to experiences is similar to how Merryfield (2008) envisions the development of global awareness as 'habits of the mind' (363). To her, these habits can foster knowledge, interest and engagement in global issues,

and these habits, like Dewey's experiences, create meaning, depending on reflection and understanding relationships.

3.2.3 Bodily experiences

In the pursuit of experiences that allow identification of connections, relationships and continuities, Dewey (1916/1968) points to the mistake of separating body from mind and from ways of thinking about learning as pure cognition. Doing so positions the student as a passive spectator, where knowledge is to be observed and memorised rather than engaged in. In this view, activity and bodily action are considered disturbing factors with regard to learning, which is preferably pursued through separate mental activity of the mind. In response, Dewey points first to how such a view has involved harmful attempts to discipline and suppress the physical needs that are naturally present among most students. And second, this view is flawed because intellectual activity is derived from sensual (and bodily) stimuli and activating the senses. Reading a book and writing, for instance, require the active use of eye muscles and prolonged training of the hands to make the right movements, but before these can occur, a large part of an infant's development deals with repeating motoric skills and playing through bodily movements. The devaluation of bodily engagement with things that increases throughout the educational levels has the destructive effect of emphasising 'things' at the expense of relations and connections. This understanding of experience is relevant to students' embodied engagements within *A World at Stake*.

3.2.4 The (embodied) role of affect and emotion

Embodied affect and emotion represented notable characteristics of students' experience of *A World at Stake*: their engagements were generally high in intensity but ranged from boredom and anger to amusement and satisfaction. In some ways, Dewey was ahead of his time when he pointed to the significant role of the body in experiences for learning. More recent work on affect and emotion has contributed to recognising an integrated understanding of the body/mind relationship (Simonsen 2007). While affects can broadly be described as what something does in an interval between sense and sense-making, emotions represent how that doing is felt and received (McCormack 2003). Affects act on bodies and are transmitted through bodies (Brennan 2004; Whatmore 2006), and can represent a social, yet more subtle, link between bodies and people, beyond the more distinct means of communication like

speech and body gestures (Simonsen 2010). While emotions can be easier to observe, they appear as a result of affects. Elster (2015) suggests that emotions enter human life in basically three ways: they are sources of happiness and misery; they impact behaviour; and they impact mental states like beliefs. The embodied character of emotions shows itself through signs of physiological arousal such as blood pressure, respiration and heart rate, and in physiological expressions like body posture, voice pitch, smiling, crying, laughing, and anger. The significance of emotions is also demonstrated by their ability to impact behaviour through tendencies or urges to perform specific actions (Elster 2015). Action-oriented emotions represent more than dispositions and potentials for behaviour; they are also forms of incipient behaviour. This can be distinguished in matters of urgency, which can '[…] induce a desire to act sooner rather than later' (Elster 2015, 141). For example, feelings of guilt are regarded as strong and, in some cases, unbearable emotions that motivate acts to remedy the feeling. That can explain how giving money to a beggar is likely to be caused by a desire to remedy an unpleasant feeling of guilt within the person who has more money, more than the prospect of emotional satisfaction from helping another person. Understanding how affect and emotion work together expands Dewey's concept of experiences and suggests that body and mind work interchangeably in what Dewey referred to as the active and passive phases of experiences. The crucial role of affect and emotion, however, is demonstrated by the fact that they can be important sources of actions. The next section considers another type of emotional experience and focuses on mastery experiences.

3.2.5 The role of mastery

The ways that tasks in *A World at Stake* indicated whether students' performances were right or wrong suggests that mastery was an element of students' experiences. Bandura (1997) defines mastery as 'self-efficacy', that is, the belief in one's capabilities to execute future tasks with a desired result. A belief in one's ability to accomplish new challenges can also invoke a sense of confidence that one is able to advance towards new levels of knowledge, that is, knowledge that appears new, difficult or more advanced compared to one's current understanding. Self-efficacy, in turn, can be developed by 'enactive mastery', which represents prior experiences of mastery. For example, if young students are provided with enactive mastery experiences in their early encounters with global poverty, the possibility that

students will face the same issue with a more open mind-set in a later context increases (Bandura 1997).

Another possible outcome of experiences of mastery is curiosity, a concept that may exemplify how, according to Dewey (1916/1918), connections between past and future experiences can be at work. Curiosity can appear as a short- or long-term phenomenon and represents a drive towards information and knowledge that seems within reach but which is not yet possessed (Loewenstein 1994). For curiosity to occur, there must be some experience with a topic that makes a person realise there is a gap in his or her knowledge. In this respect, Dewey's (1916/1968) emphasis on seeing connections and establishing relationships as a result of experiences can be important. For young students to develop curiosity about, for example, global poverty, their experience with this topic may involve familiarity with the basic principles involved, such as how education, or lack thereof, can affect the level of poverty over time in a given region. If students' experiences involve mastery, their sense of duty to know more (curiosity) can increase in general, but in order for curiosity to lead to an increase in knowledge, they need to make a connection between their experience and other sources of information such as their geography textbook in school.

3.2.6 The role of negotiation

The previous section exemplified how one experience relates to another in the case of mastery experiences. That illustrates the obvious, yet complex, point that a person's current experiences are affected by experiences in the past. Although we might focus on specific instances of current experiences, we cannot really ignore the fact that just how an individual approaches and goes through a particular experience depends, to some degree, on that person's prior experiences. Likewise, how an experience is reflected upon in the future depends on whether and how a particular experience reflects a person's prior experiences and identity. In other words, a person's current experiences are negotiated in light of prior experiences. This point is particularly utilised by Falk and Dierking (2013) to argue for the idea that the meaning that students and other visitors take with them from museums depend on their past experiences, their preferences and, ultimately, their prior identities. In their view, the key to understanding museum experiences, including visitors' meaning-making, involves taking into account how visitor identities align with the content and the experiences they have in the museum. This does not necessarily mean that people with a lot of experience and

knowledge about birds are most inclined to visit, or learn the most, from exhibitions displaying birds. The negotiation between prior and current experiences is hence complicated (Bamberger & Tal 2006). Current experiences can contribute to a person discovering new aspects of past experiences that, at the time, seemed insignificant. It is also easy to come by examples where museum visitors are fascinated, emotionally moved or deeply involved in exhibitions with topics that they know very little about yet somehow find highly relevant. The notion of relevance as offered by Simon (2016) can help to comprehend some of the complex ways that past and present experiences are connected. In relation to *A World at Stake*, we should expect that students' prior experiences, personal characteristics, motivations and aspirations are engaged in their negotiation with the content and thus affect their experiences. But it is not necessarily so that those students with a prior interest in global poverty and inequality will benefit more from the exhibition. By exploring how past and present experiences can appear relevant to individuals in myriad ways, we can suggest that past and present experiences affect one another. However, the negotiations that people do to identify something as relevant are probably so complex that we should not expect to fully comprehend the specific relationships between past and present experiences.

3.3 Experiences for global awareness - Summary comments to Sections 3.1 and 3.2

Dewey's (1916/1968) concept of experience, along with affect, emotion, mastery and negotiation, help us understand how young students' experiences of *A World at Stake* may contribute to their identification of connections and their attention to future concerns. Following Dewey (1916/1968), experiences involve both active and passive aspects. The active aspects include trying and becoming physically and mentally involved in something, including the body's capacity to affect and be affected (Brennan 2004). The passive aspects of experiences include temporality and the large and small consequences that inevitably follow from experiences. Reflective experiences describe the desirable process where students observe, negotiate and identify connections between actions and consequences. The theoretical focus on experiences in Section 3.2 thus provides a more nuanced understanding of how experiences may contribute to the aim of global awareness presented in Section 3.1, and to what Merryfield (2008) refers to as '[…] habits of the mind that foster knowledge, interest, and engagement' (363). In the next chapter, I will show how Papers 1 to 4 engage the

theoretical framework in different ways by presenting the abstracts of Papers 1 to 4 and commenting on their development.

4. A presentation of the papers, with comments

This chapter provides a presentation of papers 1 to 4 in the form of abstracts. I have chosen to provide abstracts in order to dedicate more space to reflexivity. Accordingly, each paper (i.e. abstract) is followed by a reflexive comment on its development and how I have balanced theory and empirical sources with my own pre-understanding as a researcher. The length of the comments varies because the development of some papers was more complex than others. This means that elaborations of individual papers are concentrated in this chapter, which allows Chapter 5 to be dedicated to methodologies on an aggregated level. Papers 1 and 2 are published. Paper 3 is in second review (accepted with major revisions) and Paper 4 is in the review process. They are presented here in the order of development and publication, which also involved overlapping phases of work.

Paper 1. *A World at Stake* – Global citizenship, justice, and the role of museums

Full reference:
Nielsen, S., & Klein, J. 2015. *A World at Stake* – Global citizenship, justice, and the role of museums. Thoresen, V.W., Robert, D., Klein J. & Declan D. (eds.). *Responsible living - Concepts, Education and Future Perspectives*, 217–232. London: Springer.[15]

Abstract

The purpose of this paper is to demonstrate museums' potential for promoting global awareness and social justice. The paper presents and analyses a controversial Danish exhibition titled *A World at Stake*. The travelling exhibition was based on the concept of the United Nations' Millennium Development Goals and was designed as a full-scale board game covering an area of 250 square metres, large enough for a class of pupils to take the role of live playing pieces. The exhibition was launched in 2010 by the Danish science centre,

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[15] Paper 1 was co-authored with Associate Professor Jørgen Klein. The paper developed from a preliminary analysis I did of the exhibition over a conceptualisation of social justice. The book chapter was the result of equal authorship. We both contributed to shaping the paper's structure and deciding which concepts to employ. As first author, I was responsible for the majority of the fieldwork, writing parts of the theory sections, empirical sections, the analysis and parts of the conclusions. Klein's contribution included writing the introduction and the sections on theory and parts of the conclusion, as well as contributing to refining the language, sentence structure and the overall arguments.

Experimentarium, and circulated in Denmark, Sweden and Norway until mid-2014. The target group was mainly pupils from primary and secondary schools. The exhibition was controversial due to its presentation of an unjust world in an unjust manner. The paper critically analyses the exhibition and its embedded pedagogy by drawing on the concepts of global citizenship and social justice.

Comment on the development of Paper 1

This paper was developed at an early stage of the PhD project. At that time, my views were influenced by the politics involved in representing global poverty and inequality as they are seen in the MDGs campaign (Amin 2006), and also by how this influenced the representations in *A World at Stake* (Richey & Fredriksen 2010). As such, the focus was on the representations as they were curated by Experimentarium, with significant influence coming from the MDG campaign. We considered students' experiences to be part of these representations, but the various ways that students engaged and responded differently and with nuance were not analysed in close detail in this book chapter. As such, the critical focus was on what students were invited to engage in, that is, the representations.

The choices of analytical concepts (global poverty, social justice and global citizenship) are, in part, explained by their approximation to the themes in the exhibition. The methodological approach and focus on the representations that these concepts opened up made this paper the most critically oriented of the four papers. The critical approach in this book chapter relies on an emphasis of representations, which gives priority to, for example, visual representations of Africa in *A World at Stake*. This type of critique of representations hints at notions of orientalism, as suggested by Said (1978). Although a post-colonial perspective was not pursued per se, Paper 1 offers a discussion that demonstrates some of the dilemmas that arise from analysing representations of global poverty and inequality in *A World at Stake* and the ways students experienced them. One of these dilemmas, which is demonstrated in the analysis, shows how simplified representations in the exhibition, when seen in isolation, seem problematic, but in the wider context of *A World at Stake* and the consequences of students' experiences, they may not necessarily be in conflict with promoting social justice for the world's poor population. Parts of this dilemma can be seen in relation to the generative and curiosity-stimulating outcomes in the exhibit, which became the focus of Paper 2.

Paper 2. Stimulating curiosity about global poverty and inequality - An explorative study of students' experiences with the exhibition *A World at Stake*.

Full reference:

Abstract

This paper focuses on students' experiences with *A World at Stake*, an interactive exhibition inspired by the United Nations Millennium Development Goals. The research aim of the study was to explore factors contributing to students' curiosity-evoking capacities regarding global poverty and inequality, with a particular emphasis on experiences of mastery. The research was based on a survey conducted at Glomdalsmuseet in Norway among students aged 9–17 years (n = 1094). The data analysis was performed using quantitative methodology analysis in IBM SPSS Statistics version 20. Results indicate that students' interests in social and natural environments, and their sense of responsibility and participation, seem to stimulate their curiosity. In particular, students' experiences of mastery in the exhibition are positively associated with their curiosity-evoking capacities.

Keywords: mastery, global poverty, science centre pedagogy, curiosity stimulation, quantitative methodology.

Comment on the development of Paper 2

Paper 2 was also developed at an early stage of the project and derived from observing the complexity and variation of students' experiences with the exhibition. This led me to assume that students would experience different parts of the content in different ways. The variations depended on combinations of several factors, for example, the social dynamics of the teams and in the classes, the outcomes of throwing the dice and the chance cards. It seemed desirable to grasp some of these observed complexities through a quantitative approach that would accommodate asking the same questions to a larger sample of students. My observations of the intense engagements that *A World at Stake* seemed to facilitate, along with the notion that science centres aim to stimulate curiosity (Nordal 2010; Stuedahl et al. 2014)

gave me a pre-understanding suggesting that students' experiences could be related to curiosity stimulation. Given the short and intense experience, it was not feasible to study the students' level of curiosity over a longer time span. It seemed likely, however, that I would be able to explore the factors involved in stimulating curiosity. The aim of this quantitative study was hence to understand more of the complexity of factors that are involved in stimulating curiosity. Therefore, the study applied curiosity-evoking capacities as the dependent variable, but with the main interest of exploring factors assumed to be involved in this process, as is reflected in the research question.

Although I followed a quantitative procedure, which strictly speaking follows a deductive model (Bryman 2012), much of the application of theory was developed in close accordance with the content of *A World at Stake*. For example, the survey's curiosity construct was developed in close proximity to the themes that were reflected in the exhibition's tasks and was supported by Loewenstein's (1994) theoretical and methodological approach to curiosity measures. I chose to develop a measure for what is termed 'specific state curiosity', which, according to Loewenstein's review, also seems to hold greater promise than other measures of curiosity. This focus on the curiosity variable was also informed by an observed rationale within museums and science centres to associate, theoretically more than empirically, their contributions to audiences with curiosity stimulation, a tendency which seems even more apparent within science centres and their approach to interactivity (Macdonald 1998; Persson et al. 2009; Witcomb 2011). Further, a curiosity variable found resonance in the educational principles as they are presented in Experimentarium's presentation of 'Vision, policies and objectives' (Experimentarium 2014), and in the project document accompanying the development of *A World at Stake*.[16] As such, the design of the survey aimed to work as an empirical test on fairly established yet up until now theoretical ways of thinking.

Mastery represented another important variable in the survey. The emphasis on this concept was inspired by Experimentarium's educational principles, which associate embodied mastering experiences with an inclination to seek more information (Experimentarium 2014). In addition, my observations, and thus pre-understanding, of students experiencing *A World at*

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[16] Experimentarium's project document: 'En verden på spil', updated 12 January 2009. Unpublished report.

Stake confirmed that mastery could be important for the development of curiosity. The link between mastery and curiosity was also supported theoretically by engaging Bandura's (1997) two dimensions 'self-efficacy' and 'enactive mastery'.

Other variables in the survey were influenced by literature on learning in museums described in John Falk and Lynn Dierking's widely cited publication, The Museum Experience Revisited (2013). With reference to numerous visitor studies to museums, Falk and Dierking stress the importance of visitors' personal contexts, the alignment of their interests with the exhibition's theme and their ways of engaging as important influences on how they experience exhibitions. On the basis of this and *A World at Stake*'s purpose of raising awareness of global issues, I chose to address some of the young students' personal contexts by including three variables: 'environmental behaviour', 'interest in natural and social environment', and 'responsibility'. These as well as all other variables were supported with theory. The analytical procedure also applied a standardised formula of confirmatory factor analysis for construct validation, as well as strict adherence to standardised analytical procedures for multiple regression analysis (Ringdal 2013).

While developing the paper, I sought inspiration from other published studies about learning within museums with a quantitative methodology, but the scant quantitative literature within museum studies forced me to broaden my search scope. An inspirational quantitative study was the 'Kinderbarometer Hessen. Stimmungen, meinungen, trends von kindern in Hessen' (Hallmann et al. 2008). I was able to discuss the survey design in this study of young German students' relationship to their environment with one of the authors, Christian Klöckner, at the Department of Psychology at NTNU. To design my own survey, I also drew on experiences from another quantitative study by Klöckner on the effects of environmental art.[17] In the context of museum studies, Paper 2 adds to the scarce literature that applies quantitative methods.

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[17] Klöckner, C.A. 2013. *The effects of environmental art presented at a film festival on the audience*. Trondheim: Department of Psychology, NTNU. Unpublished manuscript.

Paper 3. Affect and emotion with *A World at Stake*

Full reference (paper has been resubmitted to GEOHumanities after major revisions):

Nielsen, S.S. & Aitken, S.C. (Pending editor's decision). Affect and emotion with *A World at Stake. GeoHumanities*.[18]

Abstract

This paper focuses on young people's embodied experiences of the museum exhibition *A World at Stake* and the ways it offers affective and emotional encounters with 'poor others'. While representations of global poverty and inequality are sensitive to disengaged notions of care, they are not self-evident, and representational analyses often miss the myriads of ways that young people in particular engage in meaning making, which is not just about confirming the stereotypical. Our explorations of representations, observations, and interviews show some of the ways students' abilities to be affected and to affect difference are not simply about fixing the other, but are about experiencing 'poor others' differently and with nuance. By arguing that performing bodies are distinctively made and constituted through connections and relations to external matters, we suggest that *A World at Stake* can play an important role in young students' encounters of poverty and inequality beyond the exhibition space.

Key words: affect and emotion, 'poor others', responsibility

Comment on the development of Paper 3

This paper took its point of departure from observing *A World at Stake*'s ability to engage its participants through intense affective and emotional play. This intensity was most evident in the 20 minutes of play, but the whole one-hour experience seemed to form a programme in stages that were captivating to the students and that triggered their focus and mobilised their efforts in a variety of ways. This observation points to embodied affect and emotion as key characteristics of students' experiences with *A World at Stake* and seemed to be shared by others who observed or participated in it. This was confirmed in my conversations particularly

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[18] The paper was co-authored with Professor Stuart C. Aitken. As first author, I am responsible for shaping the main ideas and structuring and writing the main body of the paper, including the introduction, case presentation, theory, analysis and conclusion. Aitken's main contribution was to write parts of the theory section, to comment on draft versions and to contribute with phrases for better flow and coherence.

with accompanying teachers and museum staff members (these conversations are further elaborated in Chapter 5, sections on fieldwork and data collection).

The role of theory in this paper was important, both in providing tools to understand what I had observed, but also as part of my own realisation that dimensions of affect and emotion are recognised academically as important parts of young students' register of experience. Here, the work of Curti, Aitken and Bosco (2016) was influential in its way of approaching affect both theoretically and empirically in order to confront the idea of children as passive consumers of media. Their work suggests that children are active through their ability to affect and be affected and to use elements of media that are beneficial to themselves, often in unexpected ways. This means that media interventions, which exhibitions like *A World at Stake* effectively are, have generative outcomes, and even young students have a noteworthy capacity to be affected and also to negotiate these outcomes (for example by connecting prior observations of poverty in curriculum books and news coverage to experiences in *A World at Stake*). The theory-dependent perspective of affect and emotion thus allowed me to take some of the observations I had made of young students' intense engagements into scientific analysis. At the same time as a focus on affect and emotions suggests an emphasis on students' perspectives, the methodological approach does not ignore the significance of the representations themselves. The main empirical sources applied here were observations supported with photographs, and group interviews.

The choice to study embodied affect and emotion was also determined by my own curiosity about attempting to access more of the complexity involved in children's and young people's ways of experiencing. I understand some of the scepticism about exposing children to potentially harmful representations, such as the violent manga literature discussed in Curti et al. (2016),[19] or, more closely related to the current study, Fagerslett's (2014) master dissertation, which discusses stereotypical representations in high school students' learning about distant others. But it seems that some of this scepticism, my own included, is fuelled by an underestimation of students' capability to interpret and consider what they see, suggesting, for example, that exposing young students to stereotypical images fosters a narrow and

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[19] Manga is a type of Japanese comic created in Japan or written in the Japanese language.

stereotypical understanding. This is a view that, in Dewey's terms, presumes that learners absorb knowledge directly (Dewey 1916/1968, 140). While there may be some truth to such a mechanistic view, this paper attempts a fuller understanding that also considers the more fine-grained ways that children, in different ways than adults, are open to engaging in partial understandings of representations, and play with those meanings that are beneficial to their self and, possibly, to a wider community (Katz 2004).

The kind of knowledge provided in this paper represents scepticism towards claims of absolute truth and can be critiqued for settling for partial and selective understandings as opposed to more definite and conclusive approaches. However, my observations of *A World at Stake* indicated that student's affective and emotional engagements where important in their experiences, and the methodological approach applied in the paper is what I found most relevant for enquiring into this kind of material. The way Paper 3 considers the role of affect and emotion across *A World at Stake* as a one-hour event also involved looking across much of the exhibition's representations and the potential significance of individual representations. In order to reconsider the significance of some of these representations, the final paper analyses, more selectively, parts of the exhibition's content and the students' experiences of them.

Paper 4: Producing global awareness? A visual analysis of young students' negotiations of images in a museum exhibition

Full reference:

Nielsen, S.S., Setten, G. & Klein, J. (Under review). Producing global awareness. A visual analysis of young students' negotiations of images in a museum exhibition. *Children's Geographies*.[20]

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[20] This paper is co-authored with Professor Gunhild Setten, Department of Geography, Norwegian University of Science and Technology (NTNU), and Associate Professor Jørgen Klein, Inland Norway University of Applied Sciences. Based on early drafts from myself, the overall focus of the paper developed in equal cooperation through group discussions and via email exchanges. All fieldwork was undertaken by myself, who wrote first drafts for all parts of the article. Setten made significant contributions to writing theory sections. Both Setten and Klein commented on drafts, edited language and contributed to maintain the overall arguments in the paper.

Abstract

This paper focuses on young Norwegian students' encounters with images of social inequality in *A World at Stake*, a museum exhibition addressing the UN Millennium Development Goals and the challenge of reducing global poverty. The paper engages critical visual methodology and focuses on two images from the exhibition. By investigating how young students engage with and negotiate the content of these images, we demonstrate some of the ways the 'site of audiencing', that is, the museum, opens up engagements and responses that can re-frame the meaning of poverty in productive ways. The paper concludes with a discussion of how the students use their own experiences to understand the images and situate their identities within a globally and socially unjust world, and, by implication, the potential for two images to engage students in a critical questioning of their roles and responsibilities.

Keywords: young students in Scandinavia, Millennium Development Goals, social inequality, visual analysis, museum

Comment on development of Paper 4

The fourth paper narrowed its empirical focus to a consideration of students' engagements in and negotiations of two particular images in the exhibition. I thought this was pertinent as a critical contrast to the first three papers, which, to a greater extent, had emphasised students' experiences as resulting from a totality of representations experienced through the different 20-minute sequences of *A World at Stake* (introduction, game play and summary). While papers 1 to 3 attempted to encompass *A World at Stake* as a one-hour event in different ways, I felt that these analyses were unable to account for the more specific contributions contained within the exhibition. The images in *A World at Stake* were chosen specifically by Experimentarium's curators (mainly the designers Henrik Helsgaun and Dorthe Weiss) to '[…] describe, distinguish, generate stories […] related to the MDGs and represent poverty and inequality.'[21] While the images cannot be separated from the totality of representations and the larger context of *A World at Stake*, it still appeared important and interesting to focus more specifically on the effects of single representations because they seemed to have an

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[21] Interview with chief designer Henrik Helsgaun, Experimentarium, Copenhagen, 21 January 2015, and personal correspondence with designer Dorthe Weis, 2 March 2017.

important role in students' meaning-making. Paper 4 does not ignore the critique that, when considered individually, many of the representations in *A World at Stake* appear stereotypical (as suggested in Richey & Fredriksen 2010) but chooses instead to focus on how selected images enable situated reflections and negotiations of the world in which the students live. In this paper, 'the situated' involves a transgression of the local/global distinction (Holloway 2000) and suggests that students' experiences may have important implications for larger notions of societal change (see for example Aitken et al. 2008).

The paper developed around two images that comprise the main empirical material. These were chosen due to their significant role during play (as points and puzzles), and particularly during the final 20 minutes of students' experience (as visualisations of global poverty).

Crucial to the development of this paper was Gillian Rose's (2016) 'Visual methodologies', which, beyond being a useful entry into different aspects and theories of studying visual material, offers an applicable way of approaching visual materials through different 'sites'. The most important for this paper were the site of audiencing and the site of production. While the latter site allowed the paper to consider more information than just what was displayed to students, including who is in the photographs, who photographed them and what determined their composition, the site of audiencing considered students' experiences. I found these important to combine because while the site of production emphasises meaning as it is represented, so to speak (as is also pursued in Paper 1), the site of audiencing opens up the possibility that students' and their particular experience of images determine the meaning of the image to a larger extent. I found that the site of production is relevant for experiences of visual representations but is limited because it seeks to trace and reconstruct past events, the circumstances of people and technologies that went into the making of the image. It can only offer fragments of those past events and, to a large extent, misses the engagements that may be sparked off through display. The paper therefore argues that the site of audiencing seems to hold greater promise for more critical considerations of images and their meaning and maintains aspects of experience that are important for understanding the social work of images among the young students. Considering what the site of production and the site of audiencing can offer individually and in combination in an analysis of empirical material was key to the development of this paper. This paper also reflects the attempt by me as a

researcher to balance an optimistic view of *A World at Stake* with awareness of a critical perspective, as pursued in Paper 1.

In the next chapter, the perspective is shifted from individual papers, and the methodological tools and overall strategies for this dissertation are presented.

5. Methodologies

The purpose of this chapter is to elaborate my research design, including the process of producing different kinds of data during the fieldwork. The chapter has five parts: my background for conducting fieldwork, research design and strategy, combined methodologies within a case study, fieldwork and data collection. The latter elaborates the process of producing data in the field, including observations, survey data, group interviews, audio recording and photographic documentation. The chapter ends with final reflections on fieldwork, the research process and ways of using theory.

5.1 My background for conducting fieldwork

In what follows I expand on my personal motivation as briefly introduced in Section 1.2 and present my knowledge of *A World at Stake* prior to the start of my PhD project and when my fieldwork started shortly after. I provide these insights because research and fieldwork are always impacted by the position of the researcher, her or his background, as well as any preconceptions of a case (Tjora 2012). The following is personal and descriptive and hence does not contain references to the research literature.

I first heard about *A World at Stake* through a presentation by Jærmuseet at the national meeting of the Norwegian Museums Association in September 2010 in Trondheim. The ideas that were presented intrigued me, but at this stage I did not have plans for a PhD project.

The second time I encountered *A World at Stake* was during Easter in 2011, during a visit to family relatives in Stavanger, Norway. Jærmuseet and the Science Farm (Vitengarden) in Nærbø outside Stavanger is a popular destination for family outings, offering both outdoor and indoor activities. During our visit, *A World at Stake* was offered as part of a programme otherwise more typical for Easter. I took part in one team along with my relatives: three children, aged 7, 9 and 14, and their mother. We were challenged by another team represented by two young girls. The educator, a young man still in his teens, provided a very hasty demonstration of the game rules and how to operate the different tasks before he started the game. During play, we spent time wondering how to operate different tasks and how the game worked out, but we soon got used to the rules and dynamics of the game. My focus was also on the children on our team, as I helped out with reading instructions and tasks so they could

participate and perform as much as possible. I also recall thinking that, compared to the children on my team, I felt alien to understanding how games work. The children seemed to be more relaxed and approached the different tasks more enthusiastically and appeared less troubled when they faced elements they did not understand. They found meaning in engaging in the activities without knowing the whole picture. Upon arriving back home, I observed with some amazement how the 9-year-old boy was able to recount the purpose of *A World at Stake* to his family, referring specifically to poverty as a theme and the general idea of the Millennium Development Goals. I remember it as an exciting event filled with much fun, some confusion and a varied set of impressions from the exhibition elements we encountered.

A couple of years later, as a curator at Glomdalsmuseet, I proposed the exhibition as a joint project for Anno museum consortium (then Hedmark Fylkesmuseum) with Glomdalsmuseet as the location.[22] Leaders on all levels approved, and I lead a project group to finance and organise the hosting of the exhibition, a role I left before my PhD project started.

At the planning stages of hosting the exhibition, I had been rethinking my positive experiences of *A World at Stake* from Jærmuseet. I was worried about how the exhibition seemed to combine global poverty and inequality with elements of fun and entertainment. I was also worried that the exhibition could leave a fragmented and simplified understanding of representations among students, in turn confirming stereotypical notions of the Global South. Despite acknowledging that *A World at Stake* had its limits, I believed that, in light of recent museum practice in Hedmark, the exhibition was innovative and important to explore on its own terms as described by Experimentarium (Appendix 1 and Experimentarium 2014). As noted before, global poverty is usually not something that museums of the Global North relate to or consider as a part of their responsibility domain. Therefore, I believed it was more important for the Anno museum consortium to take part in the dissemination of knowledge about global poverty and inequality—concerns placed on the global agenda by the UN and the MDGs (United Nations 2015)—, despite the fact that some elements in *A World at Stake* could appear controversial. Further, it was my hope that the experiences with the exhibition

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[22] The joint project meant that a larger part of the organisation was involved. Anno museum is a consortium of 7 museum departments. The exhibition involved 15 educators from 3 different departments: Glomdalsmuseet, Kongsvinger museum and Domkirkeodden–Hedmarksmuseet.

could inspire staff from the Anno museum consortium to address other issues of social justice and inequality in the future. I also hoped that staff's experiences with the tactile exhibition format could improve the ways that participation was conceptualised and implemented in future exhibition initiatives within the Anno museum consortium.

All parts of the exhibition were contracted from Experimentarium in Denmark, meaning I was not involved in developing or creating any part of the *A World at Stake* exhibition beyond administering the setup and local organising. My administrative work involved writing applications for private and public funding, marketing preparations and inviting schools to visit. I also participated with other educators in staff preparations to present the exhibit to local visitors and participants. This work was carried out under the leadership of the department director of Glomdalsmuseet–Anno museum.

The setup of *A World at Stake* in Elverum in the summer of 2013 was identical to the setup in Jærmuseet in 2010, where the majority of texts were written in New Norwegian.[23] This text version was not translated for the display in Elverum, even though young students in this area are less familiar with reading New Norwegian. Texts with the native languages were offered at the Swedish, Finish and Danish locations. My in-depth knowledge of the exhibition was particularly developed during the summer and autumn of 2013. This included staff preparation seminars, where a staff member from Jærmuseet shared their experiences with hosting the general public, and students in particular, in *A World at Stake*. During autumn 2013, I also gained experience as an educator in *A World at Stake*, hosting a number of classes from primary to upper secondary school. Getting to know the exhibition from administrative and practical perspectives provided me with a familiarity with the exhibition that I benefited from at the start of my PhD project in January 2014. Without these preceding experiences, the same level of knowledge and insights would have taken a long time to acquire, which could have made the fieldwork more challenging to execute effectively in an already tight schedule.

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[23] New Norwegian (Nynorsk) is one of the two written standards of the Norwegian language. About one quarter of Norwegian municipalities have declared Nynorsk as their official language form. Although it is not very different from the other Norwegian standard (Bokmål), it complicates reading for readers in the beginner stages, who are accustomed to Bokmål.

Doing research within Glomdalsmuseet, which is my employer, needs some clarification. The PhD project was undertaken while on leave from my permanent position as curator. The prior experiences I had with the exhibition made me feel quite close to the study object and gave me a sense that I knew many details about the exhibition and students' experiences. As I went from being a museum employee to becoming a PhD candidate, the familiarity I had acquired required me to spend some time to adjust to a new role and consider *A World at Stake* from the position of a researcher. To support this transition I changed my work environment and used offices at the Department of Geography (NTNU) and Inland Norway University of Applied Sciences.

Despite a close association with Glomdalsmuseet, I developed my research independently from expectations within the institution. On one occasion I presented my research project to other staff members who also undertake research. During this presentation and the subsequent conversations with leaders and other staff members at the museum, I noted a generally positive attitude to the project and the prospect of increasing the museum's competence through a PhD education, but there was less interest in the details such as the research questions and study design. No guidelines or terms were given regarding what my research would involve.

5.2 Research design and strategies

This dissertation applies a case study design to *A World at Stake*, with four papers that elaborate aspects of students' experiences through both qualitative and quantitative approaches. In what follows, I elaborate what a case study design means and how this choice affects the overall project.

According to Bryman (2012), a case study design entails '[…] the detailed and intensive analysis of a single case' (68). Research with this focus is commonly concerned with the complexity and particular nature of a case, and, as Bryman notes, there is a tendency for case studies to emphasise intensive examination of the setting. Cases can include a community, a family, an organisation or an exhibition like *A World at Stake*. According to Tjora (2012), choosing a case often delimits the announced object and focus of the study, but clarification is often required. The current case, *A World at Stake*, includes the material exhibition, the premises for participation (as elaborated in Chapter 2) and the students' participation. Still, *A*

World at Stake should not be perceived as detached from a larger political context. The exhibition gains significance and general societal interest as an initiative and a response to the current challenges that global poverty and inequality represent. Therefore, *A World at Stake* also entails intentional aspects that are described particularly by Experimentarium.[24]

With a case study, Bryman (2012) notes, '[…] the case is an object of interest in its own right […] and the researcher is usually concerned to elucidate the unique features of the case' (69). While the researcher often has some ideas about what those unique features are, Tjora (2012) points to two requirements for case studies. First, it is important that case studies are 'critical' (35), which in this instance means that results in the case study should not be given, or cannot be foreseen. Although the current case study is driven by the focus given in the research question, it has remained critical by aiming to understand what characterises students' experiences on the one hand, while on the other hand remaining open to considering other and unexpected viewpoints, such as students' statements, that may prove contradictory to my pre-understanding of *A World at Stake*. The second requirement is related to societal interest and refers to what are termed the 'paradigmatic' qualities of the case study. This points to the degree to which the case study has the potential to serve as a '[…] metaphorical or prototypical generalisation as a reference for further studies' (Tjora 2012, 35). I would argue that *A World at Stake* has two paradigmatic features. The first is through the way the exhibition represents an unusual approach to a topic seldom treated in museums (Hansen et al. 2014). Second, in line with Bryman's (2012) characteristics of a case study, as the current case study aims to 'elucidate unique features' of students' experiences, the findings will arguably be relevant as a foundation for future research and practice, particularly within museum studies and human geography as well as the nascent field of museum geography (Geoghegan 2010).

Going from an overriding research strategy to adopting suitable methods is more complicated than following textbook recommendations (although these are necessary as a point of departure). Considering the relationship between the case and the researcher, the researcher

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[24] Sources describing intentions are: Press release (Appendix 1), Project document 'En verden på spil', updated 12 January 2009, educational principles described in Paper 2 and the unpublished evaluation report, 'Evaluering af undervisningsforløpet En Verden på Spil' by Kristoffer Grønbeck and Karina Goyle (Experimentarium 2010).

finds him/herself in a complex relationship with '[…] research methods, theme, perspective and theory […]' (Tjora 2012, 14). For example, sometimes it is through the application of a theoretical perspective that a phenomenon becomes interesting as a research topic, and in some cases, that theoretical perspective can indicate which methods and analytical approaches to engage (Alvesson & Skjöldberg 2009). In a different case, the researcher can focus on a characteristic that seems interesting in itself and can, in turn, search for theoretical concepts that can explain this more deeply.

In my comments on the development of Papers 1 to 4 (Chapter 4), I have demonstrated how research methods, observations and theory have played different roles throughout the research process. From the outset, I have sought to maintain an overall reflexive research strategy. This involved an openness towards different methodological approaches, where I have worked interchangeably between the theoretical level and the empirical level in pursuit of producing knew knowledge. But my research process can also be described in successive terms: I start out with a qualitative overview and a critical reflection of *A World at Stake* (Paper 1), which is followed by a broadly scoped quantitative explorative study (Paper 2). This leads to an investigation of the role of affect and emotion throughout the one-hour event (Paper 3) and is followed by a more detailed focus on students' encounters with two specific images (Paper 4). This process has, in part, been driven by my own curiosity to understand more of what characterises students' experiences, which is also what has motivated a combination of different methodologies, and it is to this I now turn.

5.3 Combined methodologies within a case study

Even though case studies are often associated with qualitative research, they are frequently sites for employing both quantitative and qualitative research (Bryman 2012). Moreover, Tjora (2012) is concerned that much of the literature on qualitative methods encourages a broader application of methods within case studies only to a small extent. My choice to pursue a variety of different methodologies can be related to what Tjora describes as 'Research as systematic curiosity' (Tjora, 2012, 14). My own curiosity should be seen in relation to how the complexities of *A World at Stake* provided diverse sets of experiences (as described in Chapter 2 and in observations elaborated later in this chapter). Practically all empirical material was gathered throughout the first half year of the project. My subsequent experiences with analysing the empirical material (elaborated in Chapter 4) developed my

research on different parts of *A World at Stake* successively and expanded my understanding of the complexities involved in young students' experiences of the exhibition. In order to understand more of this complexity, I pursued both quantitative and qualitative methodologies. The qualitative methodologies involved conducting conventional semi-structured group interviews, observations of students' participation, audio recording students' experiences and photographic documentation (Brinkmann & Kvale 2015; Bryman 2012; Rose 2016). These materials, in turn, were analysed using different approaches. I used the photos displayed in the exhibition, photos taken by myself in combination with interview material and sound-recorded citations to undertake two different visual analyses, one related to affect and emotion (Paper 3), the other related to students' negotiation of visual representations (Paper 4). An account of selected representations (task instructions, images and text) served as the basis for an aggregated analysis of *A World at Stake* (Paper 1). These different methodological approaches have the benefit of exploring a rich empirical material in some detail, but are limited by representing the experiences of a smaller number of students recorded on a smaller number of occasions (days in which *A World at Stake* was performed). The quantitative methodology included a quantitative survey analysed with the standardised set of procedures for multiple regression analysis (Ringdal 2013). This approach provided the possibility of exploring a few questions across a large number of students on a larger number of occasions (days when students played *A World at Stake*). Tjora (2012) encourages this kind of methodological diversity and argues that most case studies will favour a certain creativity and openness in the application of their methodologies. While textbook recommendations have provided important support for my choices, my motivation to pursue different methodologies is just as much a result of my own curiosity about what the different scientific methods could help me understand.

Although the different methodologies are operationalised with different concepts and variables they all consider students' experiences, and they describe different aspects of their experiences. Applying different yet related methodological approaches increases the possibility of understanding more of what characterises students' experiences of *A World at Stake*. An approach represented by only qualitative or quantitative methodologies would not have been able to explore the variety of experiences to a similar extent than what is offered by the current study.

5.4 Fieldwork and data collection

When the PhD project started in January 2014, there were 6 months left of the exhibition's display period and student visits to Glomdalsmuseet. Although I started the project with a project description approved by the Department of Geography at NTNU, the more specific methods for gathering empirical data and information were developed in January and February 2014. As previously stated, the majority of the fieldwork took place during the first half year of the project, that is from January to June 2014. The purpose of the following 3 sections is to describe procedures and provide insights into the data material. As with Section 5.1, the following sections are descriptive and hence are written without reference to literatures.

5.4.1 Recruiting and administering respondents

Because the quantitative survey would benefit from a high number of respondents, I chose to prioritise recruiting respondents to the survey as part of their visit to *A World at Stake* in Glomdalsmuseet throughout February to June 2014. As I administered as many questionnaires as practically feasible myself, these appointments would serve as a recruitment base for qualitative interviews (see Section 5.4.4 on group interviews).

An important source for recruiting respondents for the survey was the booking system of Glomdalsmuseet, which I was able to access with the kind support of museum staff members. This provided information about pre-booked school visits throughout the spring months. In January 2014 (the first month of the current PhD project), the number of pre-booked visits was substantial and provided a valuable source for recruiting respondents, both to the quantitative survey as well as the subsequent interviews. From this booking system, I made a list of all assigned schools, and a formal letter was distributed to them, both by email and ordinary mail. The letter was addressed to 'management and teachers', with information about my research project and an invitation to participate in a quantitative survey as part of their planned visit to Glomdalsmuseet (Appendix 6).

The week before the schools' visit, I made phone calls to the management of the school (in most cases, the headmaster or study inspector) and asked if they had received my first information letter and whether they had any queries or reservations about participating in the

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study. All but one school were positive, on the condition that the class had enough time during their visit. To clarify the practical details and specific appointment, I further requested the contact information (email and telephone) of the teachers that would follow the different classes to the museum.[25] As most teachers had allowed some extra time for their students while at the museum, the majority of the teachers agreed to conduct the survey straight away after visiting *A World at Stake*. As a confirmation of this appointment, I sent a personal email to the teacher I had spoken to, summarising the details of our survey appointment, along with information about the research project (Appendix 6) and a PDF version of the survey (Appendix 9).

If teachers could not be reached by telephone, a personal email was sent with information and a request for their participation in the research project. For the pre-booked schools that did not respond, I planned my schedule so I could meet the teachers upon their arrival at the museum and make an appointment from there. This proved to be a useful strategy. Teachers have busy everyday schedules, and they can be hard to reach via phone and email. Almost all teachers responded positively to my request for participation while at the museum. For most visits, the survey was conducted straight after the *A World at Stake* programme, before or after lunch time. For the classes that wanted to do the survey but did not have enough time, they were offered the opportunity to conduct the survey at the school within one week after their visit. Teachers were then given the necessary number of paper survey forms, along with information about the research project and a return envelope.

The data collection was performed in two main periods. First, a pilot study was conducted from the end of January and throughout February 2014. Second, a main study was conducted from May to June. Throughout the spring of 2014, I regularly checked the booking schedule for any new appointments that could provide more respondents to the survey. Due in part to continuous uncertainties about the number as well as the age composition of visiting students,

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[25] In the booking forms, only the name of the school, class level and number of students was provided. In some cases, they provided some names of teachers, who could then receive information about the research project. In many cases, the teachers accompanying the class during their visit were different from the names indicated on the booking form.

it was risky to limit the survey's target group, and it was developed to suit a wide range of school levels.

5.4.2 Administering the questionnaires

The questionnaires were completed on paper in a separate classroom with desks with two seats, arranged in three rows. The different parts of the questionnaire were briefly explained to the students before it was handed out. The fact that I administered over three-quarters of the questionnaires myself gave me insight into the whole process of data acquisition. I had the benefit of communicating directly with the students, so I knew precisely what was communicated and in what way. It was my impression that at least some of the students appreciated being face to face with the researcher conducting the research. At the same time, I took care to inform them about the purpose of the research, that their participation was voluntary and that their responses would remain anonymous and could not be traced to their school. I also stressed that they needed to consider every question in the survey with regard to themselves only. The remaining questionnaires were administered by Christine Furuberg, one of the staff members at Glomdalsmuseet working actively with *A World at Stake* as an educator. I personally informed her about the research project, and she attended some of my survey sessions before she administered the questionnaires herself.

Furuberg's experiences with administering the survey were valuable, and we exchanged experiences at several points during my visits to the museum. We discussed the length of the survey and how some of the words used could be challenging for the younger respondents, who could be in the beginning stages of reading. Here, we also discussed the challenge of responding to a five-point Likert scale (see Ringdal 2013, 202 for a description of the Likert format). Our observations regarding these issues coincided. Within the same age level, large variations could occur between classes and among individuals. Some classes seemed to handle the words, as well as the length of the survey just fine. Others, who might struggle with the meaning of certain words, also seemed to find it more difficult to respond using the scale. In these cases, we were available to help sort out questions the students might have. In many cases, teachers were also present and helped out with student queries. Independently of teachers' presence (which sometimes had a disciplining effect), there were differences in students' levels of concentration and focus when performing the survey, but not to an extent that made me concerned about the quality of the survey data. I reflected on these issues in

light of the forthcoming main study, where there would be a chance to revise some of the questions, but I did not find them significant enough, and only smaller modifications were added to the main survey.

5.4.3 Observations

During spring 2014, I conducted observations of 4 groups from primary school as they played *A World at Stake*. The first was a group from 3rd grade (8–9 years old), in February, followed by two 7th grade (12–13 years old) groups in May and a final 6th grade (11–12 years old) group in June. These were not chosen from any specific criteria other than practical feasibility. In what follows, I describe the circumstances while conducting the observations. I also elaborate on the content of some of these observations, as they were important for my own pre-understanding of students' experiences.

The observations began after the educator had welcomed classes to the museum. I introduced myself to each class and stated the purpose of my research. I further informed the class that I would be present during the event and would take notes in the background, and I encouraged the class to act naturally and as if I were not there. I also specified that any citations, photographs or observations of individuals would be anonymised. I also clarified with the teacher whether students had their parents' permission to be included in photos. In the exhibition area, I found my place along the outer circle of the board game area, which allowed me to stand behind or next to the installations of the exhibits (tasks and scoreboards/home bases). I placed myself within areas that were not illuminated so there was less chance of drawing attention away from the educator. During the three 20-minute sessions of introduction, game play and summary (see also Chapter 2), I was not under the impression that my presence affected the students' attention or their interest in what was before them. I did not have a precise and predefined set of characteristics, terms or concepts I was looking for but focused more generally on taking note of behaviour that could inform my understanding of the students' experiences with *A World at Stake*. I focused on how their attention shifted, from socialising between students to collectively paying attention to the educator or to the exhibition elements. I was also attentive to students' engagements and responses in terms of oral utterances and physical manoeuvres. I compared how the teams differed in terms of whether they organised themselves effectively and thought strategically about solving the games or allowed things to unfold more randomly. I also noted that the

degree of confusion seemed to depend on the ability to communicate well within each team. This approach was, in a sense, semi-structured, and I assumed it would leave me open to take note of things of unexpected importance. As an observer, I felt that taking notes during the programme distracted my focus. Instead, I spent about an hour after each session writing summaries of observations along with some reflections about what I had observed. As a supportive tool for my memory, I took photos during a few parts of the final sessions but did not take close-up photos of participating students, as I felt this might distract from their experience. Instead, I obtained copies of photos from one of the teachers who was active in documenting the activities. Some of these, together with my own, are used as illustrative photos in papers 1 to 4.

As pointed out in Chapter 2, *A World at Stake* was structured in three 20-minute sessions. The first 20 minutes involved some 'rituals' that I noted as important. Upon leaving the lobby area of the museum, and before entering the exhibition, students were required to remove their shoes as a precaution against wear and tear of the carpet floor of the exhibition. This is an unusual ritual in museum visits and in visits by schools. To reach the room where *A World at Stake* was displayed, students walked through a rather conventional display of furniture and interiors from Østerdalen displayed behind large glass casings.[26] Upon entering *A World at Stake*, they seemed to take notice of the contrast from what they had just walked through. Some immediately started to observe the space of *A World at Stake*, and some began walking around and exploring installations on their own. On a command from the educator, they took a step up to enter the centre podium (Fig. 11).

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[26] Østerdalen is a valley district in the county of Hedmark in South-East Norway.

Fig. 11. The educator to the left directs students to be seated on the centre podium. The glass sphere on top of the risers presents a rotating projection of the earth's surface. The central die is located in the dome, barely visible in the middle. Photo: Ketil Haug (2014).

The seats facing inward towards the centre directed students' vision towards each other, but up here, their perspective was lifted slightly, and they could also get a good overview of what was around them. Their eyes wandered around the installations, which all have different shapes, colours and layouts, and small conversations began among some. On the centre of the podium, four solid metal risers protruded from the benches where students were sitting, and many noticed and pointed at the central glass sphere mounted in the middle on top of these risers. The sphere was transparent, with a rastered projection of the earth's surface inside its walls. At this point, the 6th grade group was fairly quiet, yet attentive, as if waiting for the event to progress. The other groups responded in a livelier manner, conversing with each other, laughing and making jokes. Once the educator started speaking, students seemed easily attentive to what the educator said. They looked at her and, with a few exceptions, were silent during the rest of the first 20 minutes. As the educator started her demonstration of the 12 different tasks, she went from describing what the exhibition was about (poverty and the Millennium Development Goals) to explaining what students needed to do at the different installations. This seemed to be effective in drawing students' attention at all levels.

Later in her demonstration, in order to get a closer look at the installations, the younger class left their seats and gathered closely around the educator, yet they remained silent and focused, looking curiously and focusing on the required action in the different tasks. I had experienced the same effect with the younger students as an educator for primary school groups in autumn 2013. My observations from the sessions in 2014 indicated a high degree of attention and attentiveness to the educator, and maybe a willingness to find out more about what the exhibition involved for them as it presented itself as tasks to be performed for each team and each individual.

The observed impression of attention and curiosity gradually increasing probably derives from a combination of complex factors. Some interpretations of my impressions can involve the fact that, first, although the educator focused on what the students needed to do where, there were altogether many details for the students to keep in mind. It is likely that many students figured that successful participation during the forthcoming game play depended on memorising as much as possible of the educators' instructions. As the educator successively continued her instructions, the amount of detail to remember was building up, and possibly made students focus and concentrate more. Second, attention and curiosity could also be a result of developing an engagement and fascination with the concept of *A World at Stake* as the educator revealed more and more elements of the rather unconventional game and museum exhibition. In turn, this could result in excitement and expectation building up from the prospect that they would soon be allowed to try it out. Third, attention and curiosity could also result from realising that the forthcoming activities were not just for 'instant' fun, but that they were also reflecting crucial matters of global poverty and inequality beyond the exhibition space. Moving from one section to the next, the educator's instructions involved statements like 'Here, you need to stop the epidemics from spreading', 'Here, you need to catch as much food as possible', 'Here, you need to save as many babies as possible by choosing the correct treatment: either food, comfort or medicine, and 'Here you are supposed to channel the faeces (or poop) towards the treatment facility or the river so it does not end up in the streets and spreading diseases'. Although these statements were related to specific activities, they also related to the themes that are represented by the different MDGs, and these thematic references made the activities into something more than a fun game, something that provided the activities with purpose and meaning in a wider context and related them to global poverty and inequality.

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When the educator had completed one round of introducing all of the exhibition's installations, she finished her talk with a short trial to determine which team would have the benefit of starting. This was achieved by having a student throw the central die operated by a mechanical foot pedal. The team with the highest number decided which team would start out first. When it was time for the educator to initiate the game, she instructed the students to wait for her signal and pay attention to the glass sphere mounted above the group of students, and she pushed a well-hidden button that prepared the glass sphere to work as a countdown clock. At this moment, everybody's attention turned to the glass sphere, which went from flashing the earth's surface to slowly fading out. The electric buzzing sound that had accompanied the display now started to fade and silence emerged. I observed how everybody watched the glass sphere as its sound and light faded. For about 5 seconds, everything was silent, as if a power circuit had failed. Suddenly, the number '20:15' started flashing. The educator announced 'Go!', and this sparked the first team to start by throwing the central die again.

For the first part of the 20 minutes of play, students seemed a bit hesitant, as they were in the early phases of recalling the educators' instructions and figuring out how to work with the game. With teams ranging from 2 to 5 students, it took most of them some time to get used to this routine and discuss and decide who should do what. After 3 or 4 rounds of throwing the dice, performing tasks and scoring points, both the younger and older groups seemed to have familiarised themselves with the dynamics of the exhibition. At this point, students fell into the more intense phase of playing, and I observed different strategies at work among students and within their teams. Some teams shifted randomly regarding who did what throughout the activities. In such cases, students seemed to either find their own way of contributing without talking or negotiating or were simply left behind by the faster working team members. There were also a few team members who appeared to be outsiders to the group, as they appeared disengaged and uninspired, but these seemed to be the exception. Other teams found out after a while that it was efficient to let one student take care of the central die, while another collected their points. This way, the remaining participants on the team could approach the next task more quickly and increase their chances of scoring points. Some students demonstrated clearer leadership in the group and took the role of announcing what the team and team members needed to do. Others discussed more collectively who should do what. These tendencies seemed to take place within all observed groups.

In the younger classes with students about 9 years old, I observed some differences in reading skills within the teams. In addition, some found it difficult to understand words and phrases written in New Norwegian. The students' responses to these obstacles were either to have a team member with better reading skills read the chance card or to ask the educator to assist. In some cases, the students also needed assistance from the educator to understand the implications certain chance cards involved for the team.

It was my impression from these observations that the exhibition facilitated a wide range of types of behaviour and experiences among students. Some of this variation depended on relationships between specific students, for example when two close friends happened to work on the same team; and some seemed to depend on the culture within the class, that is some classes appeared quiet and disciplined, while others seemed to exert intense energy in a more random fashion. I also observed that the variation in the types of activities within each task, the elements of chance from using a die to dictate movements and drawing chance cards meant students experienced unforeseeable occurrences to a notable extent. Although many tried to work out the logic of the game, that is by working collectively to get through tasks faster so more points could be scored, there were still many elements that could not be controlled. This perhaps explains part of the reason why the intensity of the students' efforts remained largely constant throughout 20 minutes and 15 seconds. While 20 minutes may seem like a short time to go through such extensive content (see Chapter 2), the level of intensity probably made it not feel so short. When developing *A World at Stake*, Henrik Helsgaun notes, they initially thought of 20 minutes and 15 seconds as a smart way to reference the deadline of the MDGs (2015) through the time limit for the game play, but they thought this time would be too short for students to play.[27] However, when testing *A World at Stake* with groups of students, they received indications that 20 minutes and 15 seconds did not feel like a short time frame. Also, as the experience was intense, it appeared to be more than enough time for students to experience much, if not all of its content.

With some variation, noted earlier, I observed students engagement to be generally very high in intensity. This was evident from the noise level brought by their communication. Due to the

[27] Interview with Henrik Helsgaun, Experimentarium, Copenhagen. 21 January 2015.

time limit, many were stressed, and this made them talk loudly or shout. The stress could surface as a frustrating disagreement between team members, or over failing to complete tasks, that is by physically failing to hit the doctors with the rings (from the task 'Get a doctor'). Frustration was also expressed at a chance card that made the team lose points or even immobilised the whole team for a certain amount of time so they had to sit and watch other teams complete another round. Frustration could also result from an extra set of dice that could cast students into a 'Global South context', thus making the task more difficult to perform (this type of dice appeared in four tasks). Finally, frustration could also relate to the educator's unpredictable favouring of some teams and their performances over others.

There were also several features that could trigger students' amusement and laughter. Some laughed over the instructions given by chance cards, seemingly from the way it positioned the students in an illustrated and imagined scene, for example 'The girls [on the team] have to look after their younger siblings. They cannot help solve the next task.' Excitement and amusement could also be observed from trying out tasks involving physical control and collaboration, such as navigating the ball through the coffin-shaped age labyrinth or building houses from cardboard to withstand an earthquake simulation (Fig. 12).
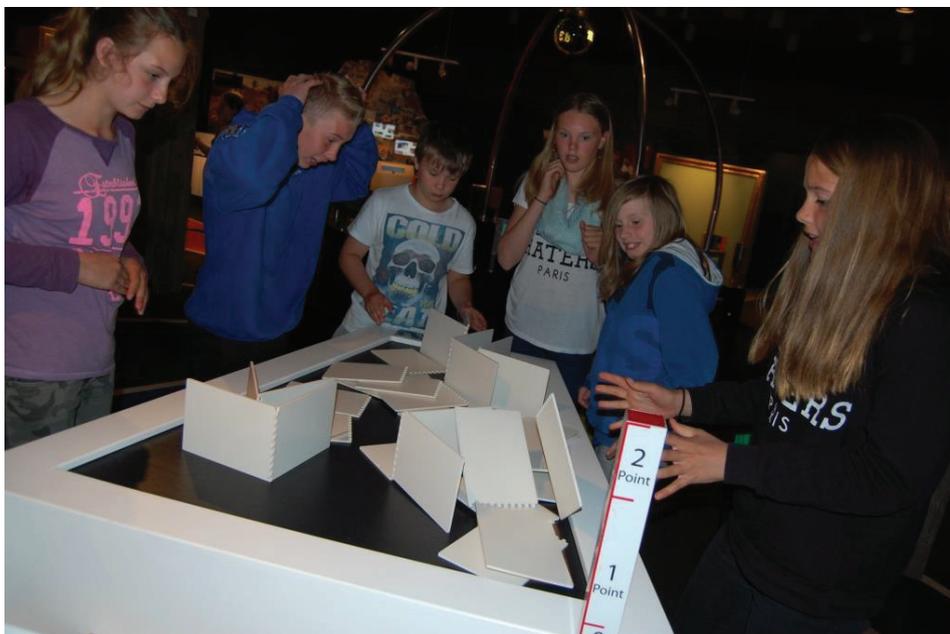

Fig. 12. A scene from the task 'When the earth shakes'. Students' efforts in building a solid house are put to the test as the table wobbles and simulates an earthquake. Photo: Ketil Haug (2014).

Amusement was also observed in students observing each other's performances. For example, the wind tunnel with whirling food tokens made students' hair fly about, which appeared funny to fellow students. Fun and amusement also seemed to be involved in observing fellow students' precision skills, or lack thereof, in targeting doctors by throwing rings from a given distance.

The final 20 minutes was a quieter session, with the students sitting in the elevated podium and listening attentively to what the educator had to say as she went through each teams' image (Fig. 13). During this time, I observed that the liveliness that had been expressed through their engagements was not unfolding as evidently as before or was taking another form. The students seemed attentive and curious to hear the educator's elaboration, but their verbal expressions, responses and reactions were not facilitated to the same degree as their more embodied involvement had been a few minutes earlier.

Fig. 13. With reference to the team's image, here showing an empty classroom, the educator prompts students about what they could identify in the image and talks about access to education. In this case, the educator reveals the complete image on an A3-sized laminated print. Photo: Sigurd Nielsen (2014).

Reflecting on my observations, I wondered if this was a consequence of the students connecting with the theme of global poverty without the rendering of game features that the

exhibition had up until now provided. Another interpretation I noted is that going from embodied play to sitting down quietly could appear as a kind of anti-climax. This reasoning opened another consideration, namely that the educator did not seem to connect the students' efforts invested during game play to what she was talking about during the final 20 minutes (Paper 3). In two of the four observed groups, some questions were posed by the educator about the students' playing experiences, which generated some responses, but the students largely went from being intensely engaged to listening more quietly.

To conclude, these observations gave me an impression that *A World at Stake* was able to capture the students' interest and attention to a high degree from very early on in the event. The first 20 minutes seemed to be an important preparation for the intensity and type of engagement that followed in the 20 minutes of game play. In the final 20 minutes, the students' engagements were more difficult to observe, as the session involved sitting and watching to a larger extent. This is not to say they were not engaged. Their engagements took more cerebral forms, and notable attention was observed among many students, although there were some individual responses and undisciplined conversing and chatter.

Although observations provide rich material when written down, I could have benefitted from conducting more specific and systematic observations of the interactions between students and teams and how they experienced each task. This would have been beneficial as a study of affect and emotions, in particular. Also, it turned out that video-recorded sessions could have been a good alternative to direct observations. On two occasions, I video-recorded one-hour sequences of students' experiences with help from a semi-professional photographer. This material was unfortunately lost before I had the chance to review it. This could have been avoided if a more professional company had been chosen to do the job. Initially I made these recordings as a precaution against unanticipated future needs and realised later in the process that it could have been a valuable source to supplement my own observations and possibly a useful source for studying affect and emotion (Paper 3).

5.4.4 Group interviews

During February 2014, three group interviews were conducted. A qualitative interview approach was chosen as a complementary method to the quantitative study and the observations. Where the quantitative method limited student responses to certain concepts

over a set structure, the qualitative interviews aimed to open up different way for students to describe their experiences with their own words and, hopefully, from their own perspectives to a larger extent. Moreover, I hoped that these interviews could invite students' individual interpretations and provide richer descriptions.

The relationship between the researcher and the subjects most often constitutes a power asymmetry (Brinkmann & Kvale 2015). In my case, the power asymmetry was a consequence of me (the interviewer) setting an agenda for the interview and controlling most of its prerequisites, particularly from my senior status as an adult and a researcher. As a countermeasure, I adapted some strategies recommended by Seidman (2013), who posits that students are likely to be more comfortable responding to a researcher in a group situation than in a one-to-one situation. Therefore, I chose to interview three groups of students, and I hoped that the familiarity between the students could motivate and stimulate individual statements more than I would be able to in one-to-one interviews. In addition, interviews were conducted at their schools because I assumed they would be more comfortable to have a researcher talk to them on their own turf, so to speak, in contrast to meeting in a place outside of school. I also discussed interview strategies towards young students with academic staff at the Department of Geography whom I knew had interview experience with this age group. These talks supported me in taking a pragmatic approach and acknowledging that qualitative interviews can only be planned and prepared to a certain extent (Brinkmann & Kvale 2015). In the end, it can be just as important to remain open to the unanticipated directions that conversations can take.

I recruited participants to these interviews after students had completed the quantitative survey in Glomdalsmuseet. I contacted available teachers and asked for an opportunity to interview some of their students. Many teachers found this difficult to fit into their class schedules, and some were not able to make this decision on behalf of the class leader. Working back and forth with requests and information, three interview appointments were made within one week or two after the class visit. For the groups' composition, I asked the teachers to choose 3 to 5 students, representing boys and girls, different personalities and different attitudes to learning and with an inclination to share personal opinions. I specified these characteristics in an attempt to compose groups that were likely to describe and

differentiate characteristics of their experiences with *A World at Stake.* The teachers were provided with a separate letter to inform parents about the research (Appendix 7).

The interviews were semi-structured, and I made an interview guide listing questions divided into sections that covered different aspects of students' experiences and how these related to their interests (Appendix 8). An important part of interviews is setting the stage to encourage interviewees to share their views on the world (Brinkmann & Kvale 2015; Seidman 2013). I pursued this by maintaining an informal style, such as avoiding academic jargon and dressing informally. I also kept the formalities to a minimum and stressed talking with the students and following up their cues if they took the initiative. I also explained that I was not going to test their knowledge and what they had learned exactly, but that I was primarily interested in hearing their recollections of experiencing *A World at Stake* and their views.

Part A of the interview covered formal requirements for conducting a scientific interview: I informed them about the purpose of the interview, that their participation in the interview was voluntarily and that they would remain anonymous (Brinkmann & Kvale 2015). Part B aimed at covering their recollections of their experiences and what they identified as the content of the exhibition. What I mean by content here was rather centred on a purpose or what they identified as a key message of *A World at Stake*. Part C aimed at identifying relationships between their experience in *A World at Stake* and concerns in the larger world as they perceive it. For example, this involved asking whether their experiences reminded them of news coverage, examples from the school curriculum or from other media. Part D aimed at discussing their interests in other countries and belonging in a globalised world. Part E aimed at discussing how they experienced *A World at Stake* as an instrument for learning. Finally, part F included an opportunity for the students to convey anything on their minds that had not been dealt with earlier in the interview.

The three groups were from late primary school, 9th grade in secondary school and a final group from upper secondary school. The two younger groups were represented by boys and girls, the third was only girls. Throughout the interview, I speculated about whether some of the responses were dutiful, as if the students were responding to an assumption about what I would like to hear them say. This, according to Seidman (2013), is a common challenge for interviews with young students, and considering the fact that we did not have much time to

get to know each other, and that I visited their school as a researcher, the outcome should perhaps not come as a surprise.

Also, it should be noted that interviews with young students can benefit from different strategies than the ones I pursued. For example, trust and confidence can, in some cases, be improved through spending more time on a second interview. Interviews can also be facilitated in ways other than asking questions, such as giving students simple tasks which is then discussed in an interview, as is demonstrated in Rye's study of young students using the Internet to learn about distant places (Rye 2013). Or, students' curriculum books could be engaged in the conversation and compared with their experiences from *A World at Stake*. These are some approaches I could have pursued in and which could have given different kinds of conversations.

The potential of knowledge gains from seemingly limited interview material became clearer in later stages of the project, through engaging more thoroughly in theory and methods that could help understand the empirical material in ways I had not foreseen. The interview material described in these sections is primarily engaged in Paper 3. Through writing that paper, I learned that the quality of a research interview is not dependent on respondents giving long and lively descriptions of experiences or on their ability to '[…] tell capturing stories well suited for reporting' (Brinkmann & Kvale 2015, 193). From analysing interviews with certain analytical concepts (affect and emotion, in particular) I realised that I had underestimated much of the potential these interviews had for the research topic.

It is possible, however, that the study could have benefitted from conducting more interviews. I made efforts to expand the interview material, but the appointments were cancelled for different reasons. One initiative that could have proved valuable was an attempt to interview a group of students from social studies (samfunnsfag) in upper secondary school in Elverum before, during and a while after their visit. I held several meetings with a geography teacher, but changes in the school's weekly schedule prevented the class from visiting *A World at Stake*, and the interviews were cancelled. I learned from this process that the often tight schedule within schools can pose a noteworthy obstacle to interview-based research. Difficulties in recruiting and making appointments are the main reasons I did not perform more interviews. At the time, I did not worry that more interviews could be beneficial, as my project relied on several other empirical sources.

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5.4.5 Audio recording

Two complete sessions of *A World at Stake* were audio recorded. The first was a primary class in February, and an upper secondary class hosted by a different educator was recorded in June. The purpose of these recordings was to document what was elaborated by the educator and students during the first and last 20 minutes. It also documented some of the audible intensity unfolding during the 20 minutes of play. Before these recordings took place, I met the class together with the educator and informed them about the purpose of the research and that they would remain anonymous in any use of the material.

5.4.6 Photographic documentation of exhibition material

I photographed all the exhibition's elements by camera in June 2014. This was initially a precaution against unanticipated future needs, such as a need to cite and analyse the text designated on the 12 interactive tasks, but the photos have also been important in the research process. The collection of photos has been one of the main sources I have returned to for inspiration when I was analysing empirical material and needed to get a different perspective. For example, when students talked about one of the tasks, I could use these photographs to recall the exhibition details and thus illuminate some of the premises of what was said in the interviews.

5.5 Final reflections on fieldwork, the research process and ways of using theory

The previous section, Section 5.4, described in detail the production of empirical material from January to June 2014. As this comprised the first half year of the PhD project, the period was both labour intensive and crucial for the project as a whole. Because the short time frame represents a given premise, it was very little time for developing and refining the overall design of the project. Improving the design would have been possible if, for example, I had more time to conduct test interviews and more time to complete methodology courses ahead of the fieldwork. Instead, I prioritised taking a quantitative methodology course during the fieldwork, as I already had some background in qualitative methodology from my graduate studies. On the positive side, being pushed to do fieldwork in the early stages forced me to be pragmatic and produce data from a tentative plan. Moreover, spending too much time planning fieldwork in the office with support from methodology literature can affect one's

conception about what the field looks like, leaving the researcher less open to conducting fieldwork with an open mind (Tjora 2012). As I was familiar with *A World at Stake* before I conducted the fieldwork, I have argued earlier in this chapter that this had some advantage to my fieldwork situation. This also implies that without this familiarity, I would almost certainly have made other choices in the process of planning and conducting the fieldwork. With respect to subsequent analysis, the methods for data production that proved most useful were the quantitative survey, the observations and the semi-structured interviews.

My understanding of the role of theory expanded and developed throughout the research process. During and shortly after my fieldwork, I had expectations that by applying different theoretical concepts and different methodological approaches I would be able to identify results along the lines of something completely new and unexpected. Later in the process, I learned that the qualitative empirical sources in particular provide hints to new knowledge in itself. Elements that I had thought had little significance could, with the application of theory, suddenly appear much more important. The most notable example was the possibilities that were opened through becoming familiar with the notions of affect and emotion (elaborated in Chapter 4 and Paper 3). The analysis in Paper 3 developed from working interchangeably between the empirical and the theoretical level to see in what ways the two could meet and form a new understanding, and thus significantly developed my understanding of how theory can contribute in a research process.

Although my analytical enquiries have involved using different methodologies (see Section 5.3), I have also put great emphasis on my own preconceptions of *A World at Stake* as I observed it during fieldwork. In addition, while theory has certainly helped to structure and analyse the empirical material, I have also found it important from time to time to simply review, by looking and reading through the different forms of empirical data without a particular analytical intent. This, along with my recollection of fieldwork experiences, has sometimes reminded me not to get too caught up in theory and not to expect too much from what theory can do. In the following and final chapter, I look across theory, methodologies and empirical accounts in order to respond to the main research question.

6. Discussion and conclusion

This chapter takes papers 1 to 4 collectively, as well as the previous chapters, as points of departure in order to respond to the main research question first presented in Chapter 1:

What characterises young students' experiences with A World at Stake, and how can these experiences be related to students' global awareness?

In Section 6.1, I discuss the first part of the research question in light of theory presented in Chapter 3. While emphasis is put on student's *experiences*, a discussion of their experiences as related to global poverty and inequality is also included. In Section 6.2 I discuss how young students' experiences may be related to the three dimensions of global awareness, also elaborated in Chapter 3: multiple perspectives on the world, knowledge of global issues and the world as interrelated systems, respectively. Based on these two discussions, an overall conclusion to the main research question is presented in Section 6.3. I draw the chapter to a close by summarising what I consider to be this dissertation's main contributions, and end by suggesting some implications for further research and practice.

6.1 What characterises young students' experiences with *A World at Stake*?

In the following, I present four related factors that I find important in order to address what characterises young student's experiences with *A World at Stake*. First, students' experiences are characterised by high intensity embodied engagements. The significance of the body in experiences is advocated by Dewey (1916/1968), i.e. the body is the main source through which affect and emotions work. Embodiment is a vital element of students' experiences with *A World at Stake*, particularly in the 20 minutes of engaged play and is thus a basis of the experiences that unfold during and after students' visit to the exhibition. During play, students' experiences include affective and emotional encounters of 'poor others', including deprived life conditions and concrete injustices, which may imply that students, by imagining and taking roles as poor others, see themselves in relation to these injustices in new ways. Negotiation of responsibilities is exemplified in Paper 3 where Sara connects one of her experiences to the world outside the exhibition: '[…] so then I realised how inequality plays out for all people' (16). The way students went through the exhibition stimulated their attention, kept them engaged and seemed to elicit emotions that were to a large degree

positive in character. According to Elster (2015), experiences that are overall positive may remain in collective memory for a long time. Accordingly, the emotionally positive experiences that students gained from *A World at Stake* increase the likelihood that students will reflect upon this experience and apply it in future contexts.

Second, Paper 2 indicates that the majority of students have mastery experiences in *A World at Stake*, and these experiences, measured through quantitative methods, contribute to students' curiosity about global poverty and inequality. Student's experiences of mastery involved observing how their activities lead to outcomes with consequences. Mastery experiences, that is, when the students observed that their efforts were executed correctly, usually involve a positive feeling and may lead to the desire to repeat an action.

The opposite of mastery, that is students observing that their efforts did not lead to a desired outcome, represents a contrast to success and usually leads to emotional dissatisfaction and less mastery. In order for a sense of achievement and mastery to occur, the possibility of failure needs to be present, so students' mastery was most likely balanced with failure to a certain extent. Mastery and failure can be related to Dewey's reflective experiences, which he describes as the process of observing and registering the relationship between what we try to do and what happens in consequence (Dewey 1916/1968). In *A World at Stake*, experiences of mastery and failure were important elements of students' reflective experiences.

While efficacy and enactive mastery are commonly associated with a rational sense of competence, it is likely that students' efficacy experiences were developed through a high degree of intensity and emotional engagement (as elaborated in the previous section), which contribute to the effect of enactive mastery (Bandura 1997). Students' enactive mastery experiences may reward students with a sense of competence and a feeling that more knowledge about global poverty and inequality can be achieved through a reasonable amount of effort, in which case, curiosity is one of the possible outcomes (Loewenstein 1994).

Third, students' experiences involve a negotiation of their identity. This is evident from how their prior experiences and identities are mobilised in their encounters with and responses to images of social inequality in *A World at Stake* (Paper 4). The encounters involved an embodied and collaborative puzzle and later mobilisation of prior experiences from their everyday lives to interpret, understand and negotiate the meaning of the images and, by

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implication, the world around them. The fact that students identified relationships between their own situated lives and their encounters of specific images can serve as an example of Dewey's concept of reflective experiences (Dewey 1916/1968). Despite the fact that some of these images can also be perceived as stereotyped, new meanings are produced through a negotiation of students' personal context (past experiences) with their current experiences in the exhibition.

Fourth, and finally, students' experiences with *A World at Stake* are significantly different from what is usually offered to students in schools and museums and represent a distinct reference point, which can be used to compare, reflect upon and negotiate future experiences. Exactly how experiences are reflected upon depends on how a particular experience relates to a person's prior experiences, their preferences and ultimately their identities (Falk and Dierking 2013). Students' prior experiences are probably important for how and to what degree they identified relationships and made connections, or 'judgements' in Dewey's terms (1916/1968), between their experiences with *A World at Stake* and a wider context of global poverty and inequality. Some students probably performed tasks haphazardly through trial and error without reflecting on a wider meaning, while other students were probably more thoughtful and may have reflected on how their activities related to their prior perceptions of global poverty and inequality. And even though it seems unlikely that students recognised the sum of all their activities as a coherent and shared sense of meaning, it is likely that some of them will draw on and benefit from these experiences in their future encounters with global poverty and inequality.

In summary, students' experiences are characterised by intensity through affective and emotional engagement, experiences of mastery and negotiations of their prior experiences and identities, with potential effects on their future experiences. Together, students' experiences of *A World at Stake* constitute an intervention with important points of reference for their future encounters with global poverty and inequality and thus with global awareness. It is to this I now turn.

6.2 How can the experiences with *A World at Stake* be related to developing students' global awareness?

Here I consider and discuss how students' experiences may be related to each of the three dimensions of global awareness: 'multiple perspectives on the world', 'knowledge of global issues' and 'the world as interrelated systems'.

Students' experiences involved developing 'multiple perspectives on the world' by solving some of the tasks from the perspective of either a Global South or a Global North country. Some of the tasks proved more difficult from the perspective of the Global South and easier from the perspective of the Global North. Importantly, the perspective alternated throughout their activities, so no group took on a fixed 'identity' as either a Global South or Global North country. The fact that the exhibition provided distinct yet changing perspectives throughout, and the intensity with which the tasks were undertaken, suggests that students developed multiple perspectives on the world to some degree. This point deserves two comments.

First, it can be argued that the exhibition's perspective, and thus students' experiences, involved looking in a one-way direction from the Global North towards the Global South, with an emphasis on the negative features of the Global South as a result. This was not always the case, as the emphasis placed on students' experiences entails that the meaning of the exhibition's representations should not be perceived as fixed but rather as part of a negotiation (Papers 3 and 4 in particular). An example is Sara cited in Paper 3 (16) who argues that taking the viewpoint of the Global South made her realise something new in an embodied way. This is an important recognition because, according to Hanvey (1976), it involves recognising that one's own worldview is one out of several alternatives. It means that one's worldview can potentially be renegotiated towards a different understanding, and this flexibility is an important step towards global awareness.

Second, Merryfield and Subedi (2001) assert that students with privileged backgrounds will need more rehearsal to develop multiple perspectives on the world because their privilege has protected them from situations that would otherwise force them to examine events and issues through viewpoints of people different from themselves. Most students engaging in *A World at Stake* find themselves in a privileged category, and it is likely that they need more rehearsal than this exhibition to come to the realisation that their worldview is not necessarily right, nor

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shared by everyone, which is the ultimate aim of multiple perspectives on the world (Hanvey 1976).

A World at Stake challenged students' 'knowledge of global issues' by presenting a variety of approaches to global poverty and inequality and some of the issues involved in relieving poverty (such as education, vaccination, improved sanitation and access to pure water). Students' experiences in *A World at Stake* did not involve acquiring extensive knowledge in the sense of thick descriptions, close-up insights from specific locations or statements from living individuals (an example of the latter is Katz 2004 and 2011). Students' experiences involved being exposed to themes, brief examples in text and images related to global poverty. While much of this content was experienced at high intensity, the interviewed students were clear that their experience of *A World at Stake* was essentially about world injustices. Erik, for example, reported; '[…] it was about […] the ways the world is unjust.' (Paper 3, 14). The interviewed students acknowledged that their experiences were related to injustice in the world outside the exhibition space, and this recognition needs to be considered as part of their knowledge of global issues. It should also be emphasised that the perspectives on poverty and inequality that *A World at Stake* was based on were put in a practical context of performing tasks and helped students to co-create their own experiences. This implies that they negotiated and took active part in meaning-making to a greater extent than they would have in a more conventional exhibition, where audience interaction is limited to observing and reading represented knowledge. I argue that student's experiences involved an embodied exposure to global poverty and inequality that is more likely to be recalled as they encounter similar topics in the future and start negotiating their past experiences in light of new ones. This kind of embodied experience can be an important step towards acquiring more knowledge of global issues in the sense of thick descriptions and close-up insights from specific locations and, through this, can contribute to developing students' global awareness.

Students' experiences may be related to comprehending of 'the world as interrelated systems' in mainly two ways. First, the overall message of *A World at Stake* suggests the world is interconnected and interdependent through shared responsibility. I have earlier argued that the exhibition is intended to demonstrate a response to the fact that no human being should have to live below the poverty threshold, and to communicate that a different world is possible (see Chapter 1 and Chapter 2). Some students, like Erik in Paper 3 (quoted above), recognised this

intention and, by implication, recognised that their engagements were related to the world as we perceive it outside the exhibition space. Second, the ways students and the class as a collective used their bodies to activate and bring life to the exhibition materials, particularly through affect and emotion, is what made the exhibition experience a significant illustration of how the world is socially, economically and politically connected. Students' experiences were to a large degree constituted by the collective intensity of the class and their observation of each other as playing pieces. With some students recognising that their activities in *A World at Stake* were related to real events elsewhere, their experiences also involved an illustration of their potential role in the larger world. Their roles were expressed both as individuals and as a collective class taking part in the exhibition and, in consequence, taking part in the challenges of global poverty and inequality, challenges that are recognised by a global community (United Nations 2016).

The discussion above demonstrates how student's experiences relate to the three dimensions of global awareness in different ways. While 'multiple perspectives on the world' and 'knowledge of global issues' seem to be the dimensions most clearly at work, the dimensions are closely related to one another, and the synergies are important for developing global awareness (Kirkwood 2001).

6.3 Conclusion

Considering Sections 6.1 and 6.2 together, I now respond explicitly to the main research question and conclude that students' experiences of *A World at Stake* contribute to developing their sense of global awareness to some degree.

While this conclusion is based on a collective contribution of papers 1 to 4, the conclusion is moderated to some degree by Paper 1, which is in part supportive and in part critical of the idea that *A World at Stake* contributes to global awareness. By emphasising the static nature of the exhibit, representations in both texts and images, including tendencies of stereotyping, Paper 1 suggests that the exhibit's contribution to developing global awareness depends on whether students are motivated to seek more knowledge related to global poverty and inequality in the future.

In support of my conclusion to the main research question, I would like to add that Papers 2 to 4 demonstrate awareness of the critical issues raised in Paper 1. Papers 2 to 4 underscore that some of the representations can contribute to stereotyping and this is important, but I am clear that they give priority to considering students' experiences in greater detail. This also means that the premises are to some degree different for Paper 1 and Papers 2 to 4, respectively. While Paper 1 places greater emphasis on static representations as determining students' experiences, Papers 2 to 4 place a greater emphasis on students' experiences of them and thus represent the main support for the conclusion.

6.4 Overall contributions of the dissertation

I would like to point out four overall contributions of this dissertation. First, within the context of human geography, this dissertations' investigations of students' experiences of *A World at Stake* represent a unique case study and an original contribution to the discipline. While there are other geographers concerned with museums (for example Beel 2017; Crang 2003; Geoghegan 2010; Waterton & Watson 2015), published research concerns exhibitions with a very different topic and with different approximations of interactivity and audience participation. While particularly notions of development remain contested and widely discussed within geography, the current dissertation, at least to my knowledge, fills a gap in the literature when it comes to exhibitions related to global inequality and how this theme could be negotiated through audience experiences. Accordingly, this dissertation should be valuable to scholarly discussions about global inequality, geographies of responsibility and social justice and, more precisely, should speak to scholars interested in the dissemination of pressing issues, such as global poverty, to students and the wider public. Given the longstanding educational role of museums (Hooper-Greenhill 1999), the dissertation speaks to museum scholars, but the discipline of geography seems increasingly concerned with communicating knowledge to a wider public (Geoghegan 2010). The dissertation is thus relevant for geography scholars interested in dissemination in general and may strike a more particular chord with scholars who recognise the spread of geographic knowledge into popular consciousness as part of a critical contribution to social justice (see for example Mitchell, D. 2008).

Second, the dissertation contributes to the nascent field of museum geography (Geoghegan 2010) by situating the museum space in relation to global forms of citizenship. It does so by

showing how students' experiences unfold within geographical relationships that, ultimately, extend beyond the confines of the exhibition space and students' local communities. Students' experiences of mastery, their affective and emotional engagements and their negotiation of images are situated yet at the same time entangled in geographical relationships spanning continents as their sense of global awareness is stimulated. The dissertation thus follows up on Beel's (2017) focus on social empowerment and implicit notions of citizenship. By extension, I suggest that museums need to consider global forms of citizenship as part of their commitment to educate and engage audiences in complex debates about social justice and global inequalities.

Third, the dissertation is an encouragement for increased interdisciplinary thinking between museum studies and human geography. The findings presented rely on combining conversations from museum studies and human geography and thus demonstrate what can be achieved by bringing two disciplines together that are not typically associated with one another. I do not necessarily suggest there are strict disciplinary demarcations between geography and museum studies. After all, research within both disciplines is most often performed in combination with other sub-disciplines from humanities or social sciences. Still, judging from my general observations and experience, as well as from the literature, it seems that few geographers find museums important enough to include in their research, and it also seems that few museum scholars see the potential in engaging geographical approaches.

The fourth contribution regards promoting methodological diversity in museum studies and, more specifically, within visitor studies (Hooper-Greenhill 2011). As already mentioned in Chapter 1, quantitative approaches are more commonly applied within studies of the contribution of science centres to science literacy and learning (Stuedahl et al. 2014). This study contributes to filling a gap in the museum literature in two ways: First, both quantitative and a variety of qualitative methods are engaged to explore the diversity of students' experiences of a rather unconventional exhibition format where participation was facilitated through game-inspired principles (Chapter 2). Second, both quantitative and qualitative methods have been applied with a majority of references from social science. Combining these research methods from social science with the exhibition's theme of global poverty and inequality is to my knowledge a unique combination in visitor studies.

6.5 Implications for research and practice

Finally, some of the students' experiences stand out with a potential for further research. The relationship between mastery, emotions and curiosity in museum contexts should be better understood. While mastery appears to be a feasible concept to study empirically (Bandura 1997), there is more uncertainty involved in curiosity, particularly because it is not necessarily a very persistent phenomenon (Loewenstein 1994). Further attempts to study how museums can stimulate curiosity probably need to approach this issue theoretically and then methodologically. If the aim of the research is to identify specific causal patterns, short-term aspects of curiosity are probably preferable, as studies over a longer time will increase the number of factors potentially contributing to curiosity. Paper 3 might provide some suggestions about how curiosity can be studied as part of an emotional register while affect can represent an important register that contributes to curiosity. Paper 3 has also revealed a future need to further understand the role of affect and emotion in museum experiences. The literature in this field is still in its early phases (Waterton & Watson 2015). Looking beyond museum experiences, the role of affect and emotion in view of how residents in the Global North relate to a topic like global poverty and inequality represents on its own an interesting and under-researched field. From the viewpoint of the Global North, there is a great deal of emotional uneasiness involved as we compare our social and material standard to countless lives in poverty in other parts of the world. Further research on this can also build on the work of for example Tvedt (1990), Jeffery (2011) and Richey and Ponte (2011) to further explore how emotions play a role in geographies of care and responsibility across different parts of the world.

One implication on practice from this dissertation concerns future initiatives aiming to address global poverty and inequality, or some approximation of social justice. Contributions from this dissertation could be taken into similar exhibition formats but with other ways of being critical, for example by increasing the emphasis on the structural and historical conditions of poverty and why it occurs in select parts of the world. Future initiatives could also attempt to question where we get our (stereotypical) preconceptions from and also when and why images appear to be stereotypical representations, and to whom. Such an initiative could attempt to take into account (stereotypical) preconceptions that some visitors of the Global North may have about distant parts of the world and could curate a negotiation of such

preconceptions through the use of simplified and potentially stereotypical images. These are by no means easy tasks to implement in a curatorial process, but the research offered by this dissertation can be a valuable contribution.

A final implication of this dissertation is that museums' relationship to citizenship and responsibility needs to be better understood on a policy level in a Norwegian context. Although museums aim to '[…] develop and communicate knowledge of how humans understand and interact with their surroundings' (St.meld nr. 49 2008–2009, 145, my translation), Norwegian policy documents come up short in addressing the responsibilities of museums and their visitors in an interconnected world (see also Museumsutvalet 1996; Kulturdepartementet 2013). One of the arguments in this dissertation is that museums as well as citizens of the Global North are a part of concerns and matters elsewhere. Our world is interdependent, and it is in everybody's interest that challenges such as poverty receive attention and that responsibilities are considered by all relevant parties. Addressing responsibility on a museum policy level suggests that notions of citizenship need to be considered, particularly those available from global and cosmopolitan forms of citizenship (Isin & Turner 2014; Linklater 2002; Sterri 2014). Understanding the responsibilities of museums in an interconnected world should not, however, be reduced to a measure of the extent to which actions in the Global North, such as donations to NGOs, contribute to solving a specific problem in a Global South context (Massey 2004). Becoming aware and informed about world problems is an important step towards, and a part of, taking responsibility. In relation to global poverty, for example, responsibility should also encompass but not be limited to a deeper consideration of how our own subjectivities are a product of historical relations to distant people and places, and a questioning of the ways individuals are allowed to relate to distant people in areas where problems seem most evident. Given the power museums have to educate their citizens (Beel 2017; Hooper-Greenhill 1999), matters of citizen's responsibilities seem ripe for museums that operate in an interconnected world, but one in which seems to need guidance and impetus of efforts on a policy level.

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Appendix 1. Press release for *A World at Stake*

Published 25.03.09, www.experimentarium.dk
Translated from Danish

A playing piece in an unfair board game

'Go to jail.' 'Do not pass Go.' 'Go back three spaces.'

We know the commands well and are familiar with the game that is played an arm's length in front of us. Be in the universe, but imagine that you stand up, step onto the game board and even become a playing piece in the game. Then, you will have a good idea of what Experimentarium, in cooperation with ActionAid Denmark, Danida, the Danish Red Cross, Doctors Without Borders, Save the Children and UNICEF, will open its doors for on 2 April 2009.

Who wants to be Africa?
'A World at Stake' is a board game the size of a tennis court, where you and your friends will be faced with different challenges depending on which space you land on. The intention behind the game is to highlight some of the inequities and absurdities that people grow up with and experience simply because they were born in a poor part of the world. You might, for example, land on the space 'Your mother is sick' or 'Fetch a doctor'. In the space, there is room to play quoits, a game typically played in the garden, but with one important exception: if you are from Denmark, you must stand by the green line closest to ring game, and if you are from Sierra Leone, you must stand by the red line, which is much farther away. The dice will determine whether you will represent Denmark or Sierra Leone.

Shit happens
You might land on the space 'Shit happens', where a 'lump of shit' (ball) from a toilet rolls out onto one of two lanes in what resembles a labyrinth like the one many of us know from playing with the Labyrinth game made by Brio. On one track, representing a city in Denmark, one must control the 'shit' into a hole that corresponds to a Danish treatment plant. The other lane represents an African village, where the ball has to be steered down to a river, but on the way, there will be many other holes into which the ball might fall. Shit is harder to dispose of, and there is a high risk of seeing it again.

You might also be hindered along the way if you land on the space with a question mark. The customary wording of the chance card, such as 'Advance to Go' is replaced with expressions such as 'civil war': If you miss a turn, you will be detained by guerrilla forces.

Play with 'minds on'
The game is meant to be played like other board games: it should be captivating, challenging and fun. It should also be both 'hands on' and 'minds on'. The hope is that the play, the intensified presence and the personal experience will open the players' eyes to the fact that life in our world is rather unfair when it comes to the conditions into which poor people are born.

The difference between the game and the real world is mainly that the dice determine the outcome in the game. In the real world, the place where one was born may seem to have been determined by some random principle.

Inspiration from Live Aid

Project Manager Henrik Helsgaun, from Experimentarium, wonders about how the game will be received by the audience:

> ... partly because we use larking around as a means to tell a story about a very serious topic, but also because it is a 'world first'. The type of game that we've thrown ourselves into has never been done before.

Part of the inspiration for the game came in January 2009, when Henrik Helsgaun was watching DR2 (Danish TV channel) and heard the legendary Live Aid song 'Do They Know It's Christmas'. The following phrase, sung by Bono, from U2, had a particular impact on him:

> Well, tonight, thank God it's them instead of you.

Henrik Helsgaun explained:

> It is a provocative phrase and challenges the way we are used to talking about the subject. It has been a great source of inspiration during the creation of our game.

New perceptions of the world

According to Henrik Helsgaun, ten years ago, it would have been inconceivable to engage in the game:

> It can be played today because we know that if one wants to send messages, it must be done through being present and personal experiences. Our game offers such possibilities.

The game may offer participants a different view of the world and inspire a reduction in the substantial differences that prevail between countries. As Henrik Helsgaun put it:

> If just one child who plays our game is inspired to think about becoming a government official or a prime minister, their experience here at Experimentarium might form the basis of an important decision later in their life. If so, I would be very satisfied.

Appendix 2. List of chance card texts

Translated from Norwegian

Your mother and other women in the village have received a loan from a fabric factory in Norway

They can now open their own sewing workshop.
Receive one point if there are any girls on the team.

You now have a toilet!

Waste can now be quickly piped away from your village.
Now, you are rarely sick. Receive one point.

A maternity clinic has opened in the village

After giving birth to a baby girl, your mother returned home in good health.
Receive one point.

During work at the factory, you are exposed to toxic fumes

Remove one point from the scoreboard and place it in the box.

Media attention comes from all over the world

Journalists and tourists arrive in droves. Take one player from another team. The player will join your team for the next activity. As thanks for their help, the other team will get two points after the task has been solved.

Everyone in the family sleeps under mosquito nets

You do not get malaria. Score one point.

Military superiority!

You have military superiority and threaten one of the neighbouring countries (i.e. another team).
Remove one point from one of the other teams.

A deadly disease hits the family

You have no money to pay for medical help or medicine.
Remove two points and place them in the box.

The village well has dried up!

Move back one space and solve the task there.

Famine in the neighbouring country!

Your team earns a lot of money by selling crops.
Receive two points.

A tidal wave hits your neighbours (i.e. the nearest team)
You will have to rebuild everything.
You receive one point as 'aid' to help with the rebuilding.

A cheap generic medicine has come onto the market
You can afford to be vaccinated. Receive one point.

Supplies of medicines have arrived in the village
You are vaccinated. Receive one point.

Your family is about to die of hunger
Remove two points from the scoreboard and place them in the box.

There is a war and you have fled to the neighbouring country
You go to school there and learn to read and write.
Move forward two spaces.

The girls have to take care of their younger siblings.
They cannot help to solve the next task.

Your parents cannot find any work!
You must help to raise money. All boys on the team must work. They cannot participate in the solving the next task.

The girls have to take care of their younger siblings
If there are more girls than boys in the team, move back two spaces.

You are going to have a baby brother. A doctor helps your mother during the birth.
Both she and the baby have survived the birth. Move forward two spaces.

A new well will be dug
You will have clean water. Receive two points.

Earthquake!
A number of towns have been destroyed and many people have died. Remove one point from the scoreboard and place it in the box.

The crops failed!
To earn money for the family, you have to leave school and start shoe cleaning.
Lose one point.
You do not learn to read. Lose one point in the next activity, too.

Father is sick!
The hospital does not have an ambulance. You have to find someone in the village who can drive him there.
Move back one space and solve the task there.

Better education!
You have been given new textbooks and the quality of the teaching is good.

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The next time you cannot solve a problem, you can still receive one point.

Civil war!
You have been stopped by guerrillas. You have to wait until the other members of your team have completed an activity.

There has been a serious outbreak of a disease!
Half of the players on the team are sick. They cannot participate in solving the next task.

There is a war in the country!
You will be a child soldier.
Remove one point from the scoreboard and place it in the box.

You are hit by flooding
You are carried three spaces back.
Solve the task in the space on which you land.

Appendix 3. List of illustrative photos on walls surrounding *A World at Stake*

1. Women carrying children in a dry desert area. El Fasher, Sudan. Photo: Panos – Polfoto.

2. Woman with a newborn baby. Kangalumira, Uganda. Photo: Panos – Polfoto.

3. Group of children in a school class. Eastern highlands, Ethiopia. Photo: Panos – Polfoto.

4. Three women among plastic water cans with water. Biltine, Chad. Photo: Panos – Polfoto.

5. A channel in a slum area with streams of water. A child and a pig can be identified among what seems to be litter. Kroo Bay, Sierra Leone. Photo: Louise Dyring, Red Barnet.

6. A young child surrounded by cooking utensils facing the camera. Kroo Bay, Sierra Leone. Photo: Louise Dyring, Red Barnet.

7. Seeds of green grass on dry desert ground. Affole, Mauritius. Photo: Panos, Polfoto.

8. Malnourished child being given a cup of food. Bona, Ethiopia. Photo: Karin Beate Nøsterud, Redd Barna.

These photos could not be reprinted due to copyright.

Appendix 4. Printed version of game rules

Experimentarium®

JÆRMUSEET

A WORLD AT STAKE
GAME RULES

Goal of the game: To collect as many giant puzzle pieces as possible.
Duration: 20 minutes and 15 seconds.
Number of players: 2-4 teams of 2-7 players each (max. 28 players).

The game board is made up of three main elements:
Activity squares, where one has to carry out a given activity.
"Chance" squares, where a card is drawn.
Four home bases of different colours.

Before the game starts:
Players are divided into 2-4 teams.
The teams start at their respective home bases.
Each team gets a game piece that corresponds to the colours of their home base.
The giant dice is placed in the middle.
Each team chooses a player to throw the dice.
The game is played in a clock-wise direction.

How to play:
The timer is started.
The teams take turns to throw the dice. The team with the highest throw starts and moves their game piece to the corresponding square, according to the dice.
Each completed activity gives 0-2 points, in the form of giant puzzle pieces, that are hung on each team's puzzle wall.
If you land of a "Chance" square: draw a Chance card.
It will tell you what you have to do.

The winner is the team that has collected the most puzzle pieces, when the timer stops after exactly 20 minutes and 15 seconds.

Have fun!

A World at Stake is a game universe that is based on the United Nations' 2015 goals: eight goals that aim to secure a dignified and sustainable future for the world's population by the year 2015.

The 2015 goals are:

1. Eradicate extreme poverty and hunger

2. Achieve universal primary education

3. Promote gender equality and empower women

4. Reduce child mortality

5. Improve maternal health

6. Combat HIV/AIDS, malaria and other diseases

7. Ensure environmental sustainability

8. Develop a Global Partnership for Development

Experimentarium and Jærmuseet developed
– A world at stake.

Appendix 5. Task designations in 'Access to school (hvem kommer i skole?)'

List of designations on circle-shaped boards. Translated from Norwegian to English.
The columns refer to the alignment of the yellow, red and purple boards.

Yellow Start	Red Start	Purple Start
Hit again! You are a boy and you can go to school.	Hit again! Your parents can afford a school uniform and books. You can go to school.	Go back to start! Your parents cannot afford a school uniform and books, so you cannot go to school.
Wait two turns! Your parents are dead, the chances are small that you can go to school.	Hit again! Your parents can afford a mosquito net. You avoid malaria and can go to school.	Wait one turn! You have to look after your siblings and you cannot go to school.
Hit again! Somebody is paying for your education.	Hit again! Your parents acknowledge the importance of attending school.	Hit again! The landmines in the area are removed so the road to school is safe.
Go back to start! You are a girl and you cannot go to school.	Hit again! Peace prevails in the country and the road to school has reopened.	Hit again! You are healthy and can walk the 5 km road to school.
Hit again! You avoid becoming a child soldier and can go to school.	Wait a turn! You need to help your mom wash clothes, so you cannot go to school.	Hit again! The country has educated more teachers. You can now attend lectures.
You are out of the game! You stepped on a land mine.	Wait two turns! You are ill from malaria and it takes a long time before you can return to school.	Wait one turn! You have diarrhoea from impure water. You cannot go to school.
Hit again! The draught is over. You can go to school instead of fetching water.	Hit again! A new school has been built nearby and you can attend school.	Go back to start! You are going to the city to work in a factory. You cannot go to school.
Hit again! You are healthy, and you can go to school.	Go back to start! You are number seven among siblings and cannot go to school.	Hit again! You are the oldest boy and therefore you can go to school.
Wait one turn! You cannot go to school because there aren't any teachers in your village.	Go back to start! You have to fetch water from a well 10 km away. You cannot go to school.	Hit again! Your family can access pure water. Therefore, you avoid diarrhoea and can go to school.
Congratulations! You can go to school.	Congratulations! You can go to school.	Congratulations! You can go to school.

Til lærere og ledelse ved skoler i Hedmark
Informasjon om deltakelse i forskningsprosjektet

Deltagelse og rettferdighet i 'En verden på spill'

Bakgrunn og formål
Formålet med denne spørreundersøkelsen er å finne ut hvordan de besøkende ved Glomdalsmuseet opplever utstillingen 'En verden på spill', sett i lys av deres bakgrunn og personlige interesse. Svarene vil bli brukt i undertegnedes doktorgradsavhandling med følgende problemstilling:
Hvordan forstår publikum i 'En verden på spill' sitt medansvar lokalt og globalt?

Prosjektet setter fokus på hvordan museer kan belyse vanskelige emner som menneskerettigheter, urettferdighet, solidaritet, med ukonvensjonelle virkemidler.

Hva innebærer deltakelse i studien?
Undersøkelsen består av ett spørreskjema som elevene vil besvare individuelt gjennom avkrysning. Spørsmålene retter seg mot elevenes opplevelse i utstillingen, og deres nysgjerrighet på temaene som tas opp av FNs tusenårsmål. Spørreskjema vil ikke samle inn noen personidentifiserende opplysninger som navn, bostedskommune, eller skoletilhørighet. Det er frivillig for elevene å delta i undersøkelsen. Undersøkelsen tar cirka 20 minutter og gjennomføres som en del av besøket på Glomdalsmuseet.

Fra noen av klassene er det ønskelig å gjøre ett intervju av lærer, samt gruppeintervju med et utvalg på 2-4 elever. Dette avtales individuelt med hver skole/lærer, som selv bestemmer tidspunkt for dette. Gruppeintervjuet vil bli tatt opp og lagret digitalt på institusjonens (NTNU) utstyr, beskyttet med personlige passord. Ingen av informantene vil være gjenkjennelige ved navn i senere publikasjoner.

Spørreundersøkelsen gjennomføres i løpet av våren 2014, og prosjektet skal etter planen avsluttes høsten 2016. Dersom du har øvrige spørsmål til studien, ta kontakt med undertegnede.

Vennlig hilsen
Sigurd Solhaug Nielsen
Stipendiat ved Geografisk institutt, NTNU
(+47) 41662824 - sigurd.nielsen@svt.ntnu.no
http://www.ntnu.no/ansatte/sigurd.nielsen

Appendix 7. Information letter to parents

Sigurd Nielsen
Geografisk institutt
Fakultet for samfunnsvitenskap og teknologiledelse
Norges teknisk-naturvitenskapelige universitet
7491 Trondheim

Hamar 12.02.2014

Orientering til foreldre - Deltagelse i studie

Deres sønn/datter har deltatt i et anonymt gruppeintervju i tilknytning til forskningsprosjektet *Deltagelse og rettferdighet i 'En verden på spill'.* Intervjuet ble foretatt 4. februar 2014 på Elverum ungdomsskole, og supplerer en større spørreundersøkelse der hele klassen deltok. Skolen og klassen ble forepurt å delta i prosjektet fordi de nylig besøkte utstillingen *'En verden på spill'* ved Glomdalsmuseet. Vi sender ut denne orienteringen til foreldre med informanter som er under 16 år.

Bakgrunn og formål

Formålet med undersøkelsen er å finne ut hvordan de besøkende ved Glomdalsmuseet opplever utstillingen «En verden på spill», sett i lys av deres individuelle personlige interesser. Svarene vil bli brukt i undertegnedes doktorgradsavhandling som har følgende problemstilling:

Med utgangspunkt i 'En verden på spill' som utstilling og formidlingstiltak, hvordan forstår publikum sitt medansvar for landskap og miljø, lokalt og globalt?

Hva innebærer deltakelse i studien?

1. Spørreundersøkelse - klasser
Studien består av ett spørreskjema som elevene vil besvare individuelt gjennom avkrysning. Spørsmålene retter seg mot elevenes opplevelse i utstillingen, hvilke oppgaver de gjorde, og kartlegger deres handlinger og interesse for tema som urettferdighet, miljøvern, bekjempelse av fattigdom.

2. Intervju – elever og lærere
Ved noen av klassene utføres det ett intervju av lærer, samt gruppeintervju med et utvalg på 2-4 elever. Dette avtales individuelt med hver skole/lærer, som selv foretar et tilfeldig utvalg. Gruppeintervjuet tas opp og lagres digitalt på institusjonens (NTNU) utstyr, beskyttet med personlige passord.

Anonymitet

Verken spørreskjema eller intervjuer samler inn noen personidentifiserende opplysninger som navn, bostedskommune, eller skoletilhørighet. Det er frivillig for elevene å delta i undersøkelsen, og ingen vil bli sitert med navn ved senere publikasjoner. Studien gjennomføres i løpet av våren 2014, og prosjektet skal etter planen avsluttes høsten 2016. Dersom du har flere spørsmål, ta gjerne kontakt med:

Sigurd Solhaug Nielsen, telefon (+47) 41662824. sigurd.nielsen@glomdalsmuseet.no

Stipendiat ved NTNU, Geografisk institutt

Appendix 8. Interview guide sample. Ungdomskolen.

EN VERDEN PÅ SPILL
Intervjuguide – elever (ungdomstrinnet og oppover)
Dato: 04.02.2014

A Generell - oppstart

Informasjon gitt til elevene før intervju:

Om meg selv, forskningsprosjekt, NTNU, Trondheim, prosjektet prøver å finne ut hvordan dere oppfatter 'En verden på spill' i forhold til spørsmål om miljøvern og utvikling – forhold mellom det dere så i utstillingen og i den «virkelige verden».
Jeg skal stille mest spørsmål, og ikke fortelle så mye. Jeg er ikke ut etter å måle hvor mye dere husker, men er mest interessert i å høre deres fortellinger og opplevelser. Her er det ingen gale svar. Det er frivillig å delta i intervjuet, selv om læreren har bedt dere om å stille. Det er anonymt. Vi erstatter navnene deres med andre navn hvis vi skal vise til i andre sammenhenger. Ingen andre får tilgang til lydopptaket enn meg.

1. Når deltok dere i EVPS – for hvor lenge siden?

2. Var dere på samme lag, eller hvert deres?

B Gjenfortellinger – hvilket språk bruker eleven om opplevelsen, og hva har de oppfattet som innholdet?

1. Den dagen dere hadde vært på museet. Er det noen av dere som fortalte om 'En verden på spill' når dere kom hjem til familie eller venner? Kan dere huske hva dere sa?

 [Alternativ inngang til spørsmål 2. og 3. / Hvis det går sakte]
[Tenk på utstillingen der dere var aktive i ulike lag.]

4. Hvilke oppgaver eller stasjoner i utstillingen gjorde inntrykk på dere?

5. Hva skulle dere gjøre på denne stasjonen, og hva tror dere var budskapet i disse oppgavene?

[evnt flytende overgang til neste spørsmål]

Tilleggsspørsmål del B:
I utstillingen møtte dere urettferdighet på mange måter. Kan dere nevne eksempler på hva dere synes var urettferdig?

Hvis dere tenker på tittelen 'EN VERDEN PÅ SPILL'. Hva synes dere at den forteller?
Husker dere hva dere først tenkte når dere skulle besøke 'EN VERDEN PÅ SPILL'?

C. Oppfatter elevene noen koblinger mellom 'En verden på spill' og den virkelige verden? Identifiserer de dette med tiltak/normative utsagn, evnt hva er deres oppfatning av handling? Eksempler fra lokale landskap eller geografisk distanserte landskap, handling i lokale landskap.

[NB! Innledes med eksempel fra en av temaene som blir trekt frem i forrige spørsmål]

1. Er det noe av dere som har sett noe lignende på TV, internett, eller i blader?

2. Hva tenker dere når dere ser, eller hører om dette?

3. Er det noe som er interessant? [Ved ingen respons/ingen interesse gå til seksjon D]

4. Er det noe som angår dere?

5. Føler dere at dere har mulighet til å påvirke omgivelsene på noen måte? Hvis ja, hvordan?

6. Skulle flere ha gjort det samme?

7. Tror dere at dere kan påvirke venner eller foreldre til å gjøre det dere vil, slik at flere gjør det samme?

8. Er noen av dere medlem i miljø- eller bistandsorganisasjon? Henger organisasjonens arbeid sammen med utstillingen på noen måte? Evnt hvordan?
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D. [Tema: interesse i internasjonale forhold, den globale medborger, identitet, tilhørighet (belonging in a globalised world? Global imperialism… (Mitchell 2000))

Er dere interessert i andre land? Liker dere å reise? Hvor mange ganger i året reiser dere utenlands?

Hvilke land virker det spennende å reise til?

Hvorfor? Hva er det som gjør dette landet spennende?

Er det noe som binder Norge til dette landet?

Er det noe som binder deg til dette landet?

[Alternativ inngang / Hvis de må hjelpes i gang] Husker dere hvilke land som var eksemplifisert i En verden på spill? Har dere lyst til å reise til dette landet? Hvorfor ja, hvorfor ikke?

Vi snakker om at vi er globale i dag og at hvert enkelt land betyr mindre og mindre. Hvor vil du si at du hører hjemme i verden? Elverum, Hedmark, Østlandet, Norge, Norden, Europa, Verden?

[Ved stor interesse for reise/blikk utover verden, Gå evnt tilbake til seksjon C og spør igjen om ikke dette gjør at de føler de an spille en rolle i verden?]

E. Læring, vitensenterpedagogikk, nysgjerrighet for tema, økt vilje til å handle?
[kobling til spørreskjema]
[Tenk på utstillingen der dere var aktive i ulike lag.]

Følte dere at dere lærte noe? Eller var det mest lek?
Hvis man lærer, hvordan lærer man i en sånn utstilling, sammenlignet med å sitte på skolen?

Er det noen av temaene som dere fikk lyst til å vite mer om?

Mener dere at utstillingen har inspirert dere til å bry dere mer?

F. Er det noe annet dere har tenkt på men som dere ikke fikk sagt underveis?

Appendix 9. PDF version of survey (pilot)

EN VERDEN PÅ SPILL

SPØRRESKJEMA

Formålet med denne spørreundersøkelsen er å finne ut hvordan de besøkende ved Glomdals-museet opplever utstillingen «En verden på spill», sett i lys av deres individuelle personlige interesser. Svarene vil bli brukt i undertegnedes doktorgradsavhandling «Deltagelse og rettferdighet i 'En verden på spill'» ved Norges teknisk-naturvitenskapelige universitet (NTNU).

Det er frivillig å delta i undersøkelsen, og alle som deltar er anonyme. Ingen svar vil kunne spores tilbake til deg eller din skole.

Takk for at du er villig til å delta!

Sigurd Nielsen
stipendiat

NTNU
Kunnskap for en bedre verden
Geografisk institutt

LES DETTE FØR DU STARTER!	Skjemaet skal leses maskinelt. Vennligst følg disse reglene: • *Bruk svart/blå kulepenn eller en god blyant. Ikke bruk tykk eller farget penn/tusj.* • *Skriv tydelig, og ikke utenfor feltene.* **Kryss av slik:** ⊠. • *Feil kryss kan strykes ved å fylle hele feltet med farge. Kryss så i rett felt.* • *Sett bare ett kryss på hvert spørsmål..*

A. OM DEG SELV

1. **Ditt klassetrinn:** ⇨ 3-4....☐₁ 5-6 ...☐₂ 8-10 ....☐₃ Videregående skole .....☐₄
Annen utdanning på videregående nivå ....☐₅

2. **Ditt kjønn:** ⇨ Jente.....☐₁ Gutt ....☐₁

3. **Har du innvandrerbakgrunn?** ⇨
Nei ...☐₁
Ja, fra Vest-Europa eller Nord-Amerika...☐₂
Ja, fra andre deler av verden...................☐₃

B. DIN OPPLEVELSE AV «EN VERDEN PÅ SPILL»

Hvordan synes du at du og din gruppe mestret «En verden på spill»? *Ett kryss for hvert utsagn.*

	Helt enig 1	Enig 2	Verken /eller 3	Uenig 4	Helt uenig 5
1. Før vi begynte å spille, forsto jeg det aller meste dommeren fra museet fortalte oss........	☐	☐	☐	☐	☐
2. Da laget mitt startet å spille, visste vi hva vi skulle gjøre ved hver oppgave	☐	☐	☐	☐	☐
3. Jeg kan forklare spillereglene i «En verden på spill» hvis noen spør	☐	☐	☐	☐	☐
4. Jeg husker de fleste oppgavene vi gjorde, og kan fortelle om dem når jeg kommer hjem	☐	☐	☐	☐	☐

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Før du fortsetter: Vennligst sjekk at du ikke har glemt noe på denne sida.

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Hvordan synes du samarbeidet fungerte i din gruppe?

	Helt enig 1	Enig 2	Verken /eller 3	Uenig 4	Helt uenig 5
5. Jeg jobbet mer enn de andre i gruppa for at vi skulle vinne...............	☐	☐	☐	☐	☐
6. Vi delte på oppgavene i gruppa	☐	☐	☐	☐	☐
7. Jeg var passiv deltager og følte ikke at jeg bidro til resultatet.............	☐	☐	☐	☐	☐

Hvilke oppgaver møtte din gruppe i spillet? Kryss av for om du gjorde hver av disse oppgavene én eller flere ganger.

	Gjorde ikke oppgaven 1	Gjorde oppgaven én gang 2	Gjorde oppgaven flere ganger 3
8. Stopp epidemien (knapper på verdenskartet)	☐	☐	☐
9. Plant et tre (1-3 skoger på 1 minutt)	☐	☐	☐
10. Vann til sykehuset (hvem skal ikke ha vann?)	☐	☐	☐
11. Hvor havner bæsjen? (i kloakken, eller på gaten?)	☐	☐	☐
12. Afrikaquizen (Afrikakart med spørsmål)	☐	☐	☐
13. Hvem får gå på skole? (3 terninger bestemmer)	☐	☐	☐
14. Fang maten (vindmaskinen)	☐	☐	☐
15. Hvor gammel blir du? (kistespillet)	☐	☐	☐
16. Skaff mat til familien? (fryseren og søppelspannet)	☐	☐	☐
17. Skaff en lege (ringspillet)	☐	☐	☐
18. Redd barna (mat, medisin, eller omsorg?)	☐	☐	☐
19. Når jorden rister (Jordskjelvspillet)	☐	☐	☐

Før du fortsetter: Vennligst sjekk at du ikke har glemt noe på denne sida.

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Tenk tilbake på opplevelsen i «En verden på spill». Her møtte du disse spørsmålene på en eller annen måte. Hvor nysgjerrig er du på hvert av dem?

	Veldig lite nysgjerrig 1	2	3	4	Veldig nysgjerrig 5
20. Hvordan sprer sykdommer seg i verden?	☐	☐	☐	☐	☐
21. Hvordan kan rent vann redde syke mennesker?	☐	☐	☐	☐	☐
22. Hva skjer med kloakken på steder hvor de ikke har doer og rense-anlegg?	☐	☐	☐	☐	☐
23. Hvordan kan skogplanting gjøre at flere mennesker får det bedre?	☐	☐	☐	☐	☐
24. Hvordan lever barn og unge i Afrika?	☐	☐	☐	☐	☐
25. Hvor mange mennesker i verden lever av å finne mat blant søppel?	☐	☐	☐	☐	☐
26. Hvordan kan flere gutter og jenter få tilgang til skole og utdanning?	☐	☐	☐	☐	☐
27. Hvorfor dør mange mennesker tidlig i fattige land?	☐	☐	☐	☐	☐
28. Hvordan skaffer fattige mennesker mat?	☐	☐	☐	☐	☐
29. Hvordan kan det bli færre fattige i verden?	☐	☐	☐	☐	☐
30. Hvordan kan syke mennesker som ikke bor nært sykehus eller lege få hjelp?	☐	☐	☐	☐	☐
31. Hvordan kan vi redde flere barn i verden?	☐	☐	☐	☐	☐
32. Hvordan kan flere mennesker overleve flom, uvær, og jordskjelv?	☐	☐	☐	☐	☐

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med bistand fra SVT-IT, NTNU

*Før du fortsetter: Vennligst sjekk at du
ikke har glemt noe på denne sida.*

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C. DINE INTERESSER OM NATUR OG MENNESKER

Hva gjør du av hensyn til naturmiljøet eller andre mennesker?

	(Nesten) aldri 1	Sjelden 2	Av og til 3	Ofte 4	(Nesten) alltid 5
1. Jeg ser etter varer som er miljømerket eller er merket «rettferdig handel»	☐	☐	☐	☐	☐
2. Jeg sjekker hvilket land klærne mine er laget i	☐	☐	☐	☐	☐
3. Jeg sorterer søppel	☐	☐	☐	☐	☐
4. Jeg slår av lyset for å spare strøm	☐	☐	☐	☐	☐
5. Hvis jeg kan velge, vil jeg heller gå eller sykle enn å bli kjørt i bil	☐	☐	☐	☐	☐
6. Jeg sjekker hvilket land maten jeg spiser kommer fra	☐	☐	☐	☐	☐

På skalaen fra 1 til 5, hvor interessert er du i…

	Veldig lite interessert 1	2	3	4	Veldig interessert 5
7. … natur og miljøvern i Norge?	☐	☐	☐	☐	☐
8. … hvordan mennesker lever og har det i Norge?	☐	☐	☐	☐	☐
9. … natur og miljøvern i andre land?	☐	☐	☐	☐	☐
10. … hvordan mennesker lever og har det i andre land?	☐	☐	☐	☐	☐

På skalaen fra 1 til 5, hvor villig er du til å gi litt av dine egne penger til…

	Veldig lite villig 1	2	3	4	Veldig villig 5
11. … en sak som hjelper mennesker i Norge?	☐	☐	☐	☐	☐
12. … en sak som hjelper mennesker i andre deler av verden?	☐	☐	☐	☐	☐
13. … en sak som jobber med naturvern i Norge?	☐	☐	☐	☐	☐
14. … en sak som jobber med naturvern i andre deler av verden?	☐	☐	☐	☐	☐

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Undersøkelsen gjennomføres med bistand fra SVT-IT, NTNU

Takk for at du ville svare på spørsmålene!

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PART II

Paper 1

Paper 2

Stimulating curiosity for global poverty and inequality

An explorative study of students' experiences with the exhibition *A World at Stake*

Sigurd Solhaug Nielsen

Abstract: *This article focuses on students' experiences with* A World at Stake, *an interactive exhibition inspired by the United Nations Millennium Development Goals. The research aim of the study was to explore factors contributing to students' curiosity-evoking capacities for global poverty and inequality, with a particular emphasis on experiences of mastery. The research was based on a survey conducted at Glomdalsmuseet in Norway among students aged 9–17 years (n = 1094). The data analysis was performed using quantitative methodology analysis in IBM SPSS version 20. Results indicate that students' interests in social and natural environments, and their sense of responsibility and participation, seem to stimulate curiosity. In particular, students' experiences of mastery in the exhibition are positively associated with their curiosity-evoking capacities.*

Keywords: Mastery, global poverty, science centre pedagogy, curiosity stimulation, quantitative methodology.

In the Global North, global poverty and inequality are recurring issues in newspapers, television broadcasts, curricula textbooks and humanitarian campaigns, yet it is rare to see these issues addressed in science centres and museums. While environmental problems have, to a certain extent, been addressed in Scandinavian museums, Anders Hansen *et al.* argue that the perspective has been almost exclusively locally oriented and with a natural science approach to pollution and consumption

(2014:78). They argue that museums should expand their responsibilities by more actively prioritising global challenges through a social science perspective, a recommendation thoroughly reasoned out in Robert Janes' book, *Museums in a Troubled World* (2009). The recent trends of corporatism and business orientation pose potential threats to museums' attention towards social challenges and environmental problems. Morten Søndergaard and Robert Janes argue, however, that the real

42 challenge is for museums to find ways to engage in social responsibility without compromising corporate demands (2012).

This article supports the above concerns and presents results from students' experiences with *A World at Stake*, an interactive exhibition jointly developed by the science centres Experimentarium (Denmark) and Jærmuseet (Norway).[1] Global poverty was addressed in *A World at Stake* using the United Nations' (UN's) Millennium Development Goals (MDGs) campaign as inspiration (United Nations 2014).[2] The MDGs draw on a dualism between developing nations (i.e., poor) on the one hand, and developed nations (i.e., rich) on the other hand (Amin 2006). This almost dichotomous understanding of inequality was incorporated into the design of the exhibition, which took the form of a scaled-up board game. From 2009 to 2014, over 15,000 students and leisure-time visitors experienced *A World at Stake* in Denmark (Experimentarium), Sweden (Teknikens Hus) and Norway (Jærmuseet and Glomdalsmuseet).

In support of the educational ideas of *A World at Stake,* John Falk and his colleagues argue that one of the most valuable contributions of museum visits is to stimulate audiences to learn more (Falk *et al.* 2011, Falk & Dierking 2013). The inspirational and generative aspects of visits are particularly present in science centre pedagogy, where young audiences engage with content in interactive, social and exploratory ways (Witcomb 2011). Importantly, such content is implemented through open-ended tasks, and the process of interaction, where visitors observe the results of their own efforts, is regarded as a key to stimulating curiosity and, hopefully, further learning. This often involves a combination of educational and entertaining features designed to reward young audiences with a feeling of competence and a sense of

mastery, in turn influencing their motivation to know more (Caulton 1998, Falk *et al.* 2004, Falk & Needham 2011).

Science centre pedagogy (and hence also research) is almost exclusively concerned with science literacy and learning (see for example, Stuedahl *et al.* 2014), but an exploratory and curiosity-stimulating approach should also be highly relevant for examining global poverty and inequality. The issue of how to best engage short- and long-term strategies to achieve a more just configuration between developed and developing nations is a frequent subject of scrutiny and debate (Rydin 1999, Lee & Smith 2004, Sterri 2014, United Nations 2014). Because issues such as global poverty and inequality are seldom clear-cut, international communities such as the UN encourage individuals to develop paths to more knowledge, and to use these as principles for achieving long-term goals (Holden 2000). With this background, the current research responds to a need to better understand how museums can engage in global poverty and inequality education through a curiosity-stimulating approach, by exploring the following research question: How are students' curiosity-evoking capacities for global poverty and inequality as addressed in *A World at Stake* associated with their participation and mastery experiences in the exhibition?

In response to this question, I used regression analysis to explore how independent variables such as students' interest, participation, mastery and their backgrounds, is associated with their curiosity-evoking capacities (dependent variable) for global poverty and inequality as addressed in the exhibition. The role of students' participation and mastery experiences is emphasised because the exhibition rests on a theoretical association between participatory mastering experiences and an inclination to

seek more information about poverty and inequality. The study is based on an on-site paper survey conducted at Glomdalsmuseet among students aged 9–17 years (n = 1094). The data were analysed using quantitative methodology analysis in IBM SPSS version 20, including principal axis factoring, bivariate correlation and multiple regression analysis.

Curiosity is a short- or long-term drive towards knowledge that one does not yet possess and results from a complicated set of social and cognitive relationships (Loewenstein 1994). No single theory can grasp this complexity. Neither can the current article account for all of the complexities of the causal relationships appearing in the study. My research focus is on the short-term aspects of students' curiosity-evoking capacities. This is theoretically based on George Loewenstein's "specific state curiosity" (1994:77), which understands curiosity as a short-term state and drive towards information suited to fill knowledge gaps realised either implicitly or explicitly.

The article continues with insights into the exhibition experience, emphasising the role of mastery, then outlines theory, previous research, methodology, results, discussion and conclusions.

Experiencing and mastering *A World at Stake*

According to Experimentarium, curiosity is stimulated when participants are challenged to a reasonable extent (i.e. when the challenges are neither too hard nor too easy), such that a sense of competence and mastery is facilitated.[3] They further argue that the quality of this process is improved when the purpose of the activity is clear, when elements of fun and amazement trigger intensity, and when

the experience is shared in a socially dynamic context.

Each visit to *A World at Stake* was organised as a one-hour event led by a museum educator. Students took part as playing pieces on a surface covering 250 square metres. Each class was divided into four teams. The first 20 minutes were spent informing the students of game rules and how to perform at each location within the exhibition, while the larger questions of global poverty remained implicit. As the educator started the game, the students performed intensely for 20 minutes and 15 seconds (a symbolic reference to the MDGs' 2015 target). The four teams used a centrally placed die that led them to tasks inspired by the MDGs (fig. 1).

All tasks were uniquely designed and challenged students' social, physical, cognitive and strategic capacities in different ways. For example, the task "Who can get to school?" was inspired by MDG 2 (achieve universal primary education), and its design used elements from the children's game hopscotch (fig. 2).[4]

Upon approaching the task seen in figure 2, students needed to rapidly recall the instructions given by the educator on how to perform it, and to agree on who would throw the three coloured (yellow, red and blue) dice near the school desk (social/strategic challenge). One team member announced the numbers on the dice out loud, steering other players to instructive floor panels. The panels represented obstacles to and opportunities for receiving an education, and said, for example, "Wait one turn, you have to look after your siblings and cannot attend school", or "Proceed, your parents can afford a school uniform", or "Move back to start. You have to fetch water from a well 10 kilometres away. You cannot attend school". The team had only five attempts with the dice to complete

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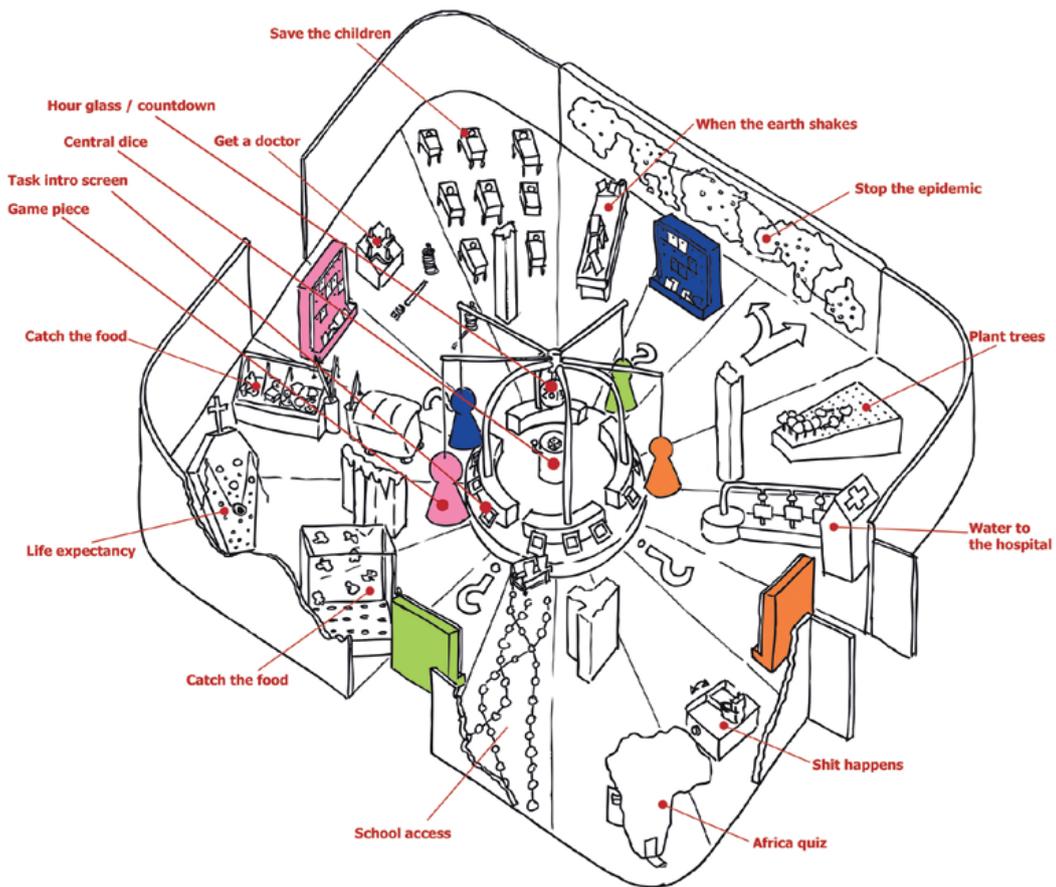
Fig. 1. Conceptual illustration of A World at Stake. The floor space (250 square metres) is covered with twelve interactive tasks and four team home-bases. Illustration printed with permission from Experimentarium (2009). Designations in the illustration are translated by the author.

the task. After counting their score, students rolled the central die again and were directed to a new challenge with a different theme and design. The time limit made the tasks more difficult by pushing students to perform under pressure and intensity. Text had to be rapidly announced and acted on (physical and cognitive challenge), and consequences had to be quickly interpreted and responded to within the team (cognitive, social and strategic

challenge). Students faced up to eleven other tasks, all inspired by the MDGs and the theme of global poverty and inequality (see fig. 3).

According to Experimentarium's educational principles, mastery in *A World at Stake* is determined by the degree to which students felt they could understand, perform and accomplish the overall challenges laid out for them. An evaluation by Experimentarium, based on qualitative interviews, asked students

Fig. 2. Secondary school students in the process of achieving school attendance and score points for their team as part of the task "Who can get to school?". A scoreboard can be seen on the right-hand side. Photo: Sigurd Solhaug Nielsen, 2014.

about their experiences of inequality and unfairness in *A World at Stake.*[5] Some students explained that even though they faced unfair elements while playing, the ultimate point of unfairness concerned poor people in other parts of the world, not students participating in the exhibition. It appeared clear to these students that the purpose of the experience was to focus on the theme of global poverty and inequality in a larger context. Recognising

the purpose of an activity is, according to Experimentarium, an important premise for curiosity stimulation and is closely tied to mastery experiences. In addition, mastery can help students achieve a positive first encounter with the theme of global poverty and inequality and imprint their experience with positive associations, in turn making students more open to questions related to global poverty. See Nielsen & Klein (2015) for

46 a more critical review of representations in *A World at Stake.*

The following section provides a theoretical framework for how the exhibition contributes to the curiosity-evoking capacities of global poverty and inequality.

Theory

Global awareness – Poverty and unequal access to education, health, shelter and security
Global awareness is a desirable characteristic of future generations. Gibson and colleagues define it as "[…] knowledge of globalisation and the resulting issues and problems that affect us all" (2008:15). Nevzat Soguk argues that "awareness" and a call "[…] for citizens to be attentive to the developments of the world, to be outraged by injustices, and to participate in politics […]" represent the ethical anchor of the closely related concept of global citizenship (2014:49). As a theoretical concept, global awareness helps us to better address the purpose of *A World at Stake.*

The MDGs advocate equal access to "education, health, shelter, and security" (United Nations 2014) and are promoted by the UN as an alternative set of human rights. To the daily lives of students participating in *A World at Stake,* however, they represent grim contrasts. First, in developing regions, providing primary education and equal access to schools for both genders are some of the keys to combatting poverty. Second, health-related challenges involve reducing the number of deaths among children less than five years of age, improving maternal health via medical support and combatting HIV/AIDS through information and vaccination programs. Third, environmental challenges include access to improved drinking water and sanitation systems. The latter is also vital to combatting defecation out in the open,

which spreads diarrheal diseases and causes a great number of child deaths (United Nations 2014). Deforestation and climate change are also critical issues, as poor people are more vulnerable to environmental changes.

These challenges concern 1,4 billion people, mostly within developing regions and far away from Scandinavian students (United Nations 2013). However, increases in migration from Africa to Europe (including to Norway in 2015) can be witnessed firsthand by students in the Global North, and they can see some of the ways in which we are practically and morally connected across distances and borders. *A World at Stake* is arguably an attempt to confront young students with these inequalities, and to increase their attentiveness to people and conditions across the globe. The purpose and contribution of the exhibition can then be identified as global awareness (Gibson *et al.* 2008, Soguk 2014), achieved through highlighting inequalities (access to education, health, shelter and security), in turn mobilising a sense of duty or obligation to learn more about the challenges of poverty.

Specific state curiosity
Curiosity is a complex phenomenon. Within the psychology discipline, several theories are needed to cover its complexities; however, there is consensus that it stems from a general human need to make sense of one's environment, and that it is stimulated by both internal and external factors (Berlyne 1954, Renner 2006:306). Loewenstein suggests that differing notions of curiosity can be bridged by a "knowledge gap" perspective, in which curiosity is evoked as a person becomes aware of or focuses on a gap in his or her knowledge, and a feeling of deprivation leads to a need to close that gap: "The curious individual is motivated to obtain the missing information to reduce or eliminate

Fig. 3. The photo shows four teams in action on about half the exhibition layout. A diversity of tasks, themes, and student efforts characterized A World at Stake's *approach to global poverty and inequality. Photo: Sigurd Solhaug Nielsen, 2014.*

the feeling of deprivation" (Loewenstein 1994:87). This means that information-seeking is not necessarily anticipated by pleasure, but can be motivated by discomfort due to not possessing information, for example, by developing a moral obligation to know more.

The current empirical study is limited to curiosity-evoking capacities and is built on Loewenstein's "specific state curiosity", which he exemplifies as "[…] the scientist's search for the solution to a problem" (1994:77). This describes curiosity as a momentary state and drive towards specific pieces of information suited to fulfil knowledge gaps (i.e., problems). The study concerns curiosity on global poverty and inequality, which include several incremental problems (i.e.,

unequal access to education, health, shelter and security). Such problems may not anticipate a high level of curiosity, as any single piece of information is unlikely to yield a sudden answer and closure of knowledge gaps (Loewenstein 1994:88). However, if filling information gaps is accompanied by a prospect of increasing competence, it is assumed that this may satisfy people's general desire to feel competent, and thus strengthen the level of curiosity (Loewenstein 1994:93). The following section elaborates on mastery and participation as two sources of such competence attainment.

Mastery, participation and interest
The importance of mastery is, according to Albert Bandura, closely related to human

48 agency. He sees humans as "proactive, aspiring organisms that have a hand in shaping their own lives and the social systems that organize, guide, and regulate the affairs of their society" (Bandura 1997:vii). Self-efficacy, understood as the "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura 1997:3), is in this theorising seen as a vital capability in human motivation and agency. The best source of enhancing efficacy beliefs is enactive mastery, which equates to previous experiences of mastery (Bandura 1997). For these reasons, mastery of *A World at Stake* is important to experiencing control and positive associations among the participating students. They may recall such positive experiences when confronted with the themes later in life.

Participation is an important component of mastery experiences and is understood as students' collective and collaborative effort in solving problems and challenges faced in the exhibition above "Experiencing and mastering...". The educational philosopher John Dewey argues that such active collaborative participation processes result in better learning (Dewey 2000), a point highly applicable to museums and science centers (Falk & Storksdieck 2005). In viewing citizens' political education as a lifelong process, Jane Mansbridge argues that "Participating in [small or large scale] democratic decisions makes many participants better citizens" (Mansbridge 1999:3). Based on these theories, the degree of participation and mastery experiences in *A World at Stake* will likely positively influence students' curiosity-evoking capacities.

Interest is related to, yet distinct from, the term curiosity. Bandura defines it as "[…] a fascination and a drive towards something" (1986:243). A personal interest in the topics addressed in the exhibition may contribute to students' curiosity-evoking capacities.

Previous research – Science centres and curiosity stimulation
With regard to *A World at Stake*, little research, if any, focuses on interactive approaches to global poverty and inequality. Due to a lack of comparable studies, the following reviews research related to museums and curiosity, where most examples concern science centres' influence on science learning and literacy.

In a Norwegian context, Sverre Nordal's review of research indicates that student visits to science centres have some influence on attitude, curiosity and interest relating to science (Nordal 2010); Camilla Schreiner *et al.* (2010) offer some empirical support. Although curiosity is seldom explicitly defined as a measurable part of a learning outcome, it is widely discussed by educators as an asset of science centre experiences. Lene Naustdal (2008) demonstrates how differing notions of purpose among students, teachers and the science centres themselves challenge the formal purpose of Norwegian science centres, which is to inspire and motivate their visitors to become curious individuals. Inge Håvard Jore (2010:55) argues that enjoyable and affective experiences in science centres are an indispensable part of knowledge building, as these motivate students to sustain and nurture acquired terms and concepts over a longer term. Falk *et al.* (1998) demonstrate how the degree of learning from engaging experiences depends on visitors' expectations, and suggests that visitors expecting to be both educated and entertained tend to learn more than those who expect either education or entertainment. Bamberger & Tal (2006) evaluate the balance of educational and entertainment elements in school visits to museums, and find that

visits to museums marked by a clear purpose and a limited number of free-choice activities proved more effective in developing curiosity and interest among students. Falk & Needham conclude that for the local population in Los Angeles, visits to the California Science Center had positive impacts on their attitudes and behaviours towards science and technology learning (2011:9).

METHODOLOGY

Dependent variable "curiosity about global poverty and inequality"

The dependent variable was developed from the tasks in A World at Stake and their themes. This resulted in a thirteen-item construct, and reflects solid construct validity (Ringdal 2013) on the theme of global poverty and inequality (Appendix B20/C17-B32/C29). In the survey, students were prompted with questions and responded to a five-point Likert scale (Ringdal 2013:202).[6] This approach aimed to measure a short-term state of students' curiosity-evoking capacities, where responses are necessarily influenced by internal and external factors (Loewenstein 1994:77).

Explanatory variables

This study gave priority to nine explanatory variables. This section explains how they were operationalised in the questionnaire, followed by expectations regarding the results. All items and variables are given in the Appendix.

To see whether students' age mattered significantly for evoking curiosity, item A1 categorised respondents into primary, secondary and upper secondary school levels.

According to Lynnette Zelezny and colleagues, studies have indicated that boys and girls have different attitudes and behaviours towards environmental concerns, with explanations tending to suggest that girls are socialised to value the needs of others (2000:445–448). A gender category (A2) was applied to see whether boys and girls responded differently to the exhibition's focus on the needs of poor people.

Significantly, museum visitors are increasingly immigrants or of immigrant descent, with complex yet important consequences for their experiences (Bennett *et al.* 2009:236). The exhibition's focus on poverty in the Global South emphasised the relevance of students' experiences of migration and/or multicultural backgrounds. An "immigrant background" item was adopted from the *Norwegian Mock Election Survey* (A3).[7]

A mastery instrument was developed based on "enactive mastery" and "self-efficacy" (Bandura 1997:80). Two items focused on students' understanding of the instructions and knowing what to do while participating in the exhibition (B1–2/C1–2) and two items (self-efficacy) focused on student's perceptions of their abilities to recount the exhibition's content (B3–4/C3–4).

According to Falk & Storksdieck (2005), task performance has proven to affect learning in science centre visits. Participation is measured according to the number of tasks they performed (B8–19/C5–16).

Falk & Dierking (2013) maintain that visitors' personal context – their prior experience, interest and knowledge – influences their experience of exhibitions in complex yet important ways. The current study measured students' personal contexts through the following three variables.

First, "environmental behaviour" focused on personal environmental choices in consumer consumption and energy-saving. The idea was developed from Sylke Hallmann *et al.* (2008) and local items were added (C1–C6/D1–D6). Because the exhibition questions students'

50 awareness, it is reasonable to assume that the respondents' environmental behaviour influences their curiosity.

Second, "interest in natural and social environment" reflects students' general interest in social and natural environments (C7–C10/D7/–D10).

Third, "responsibility" focused on student's willingness to pay for humanitarian or environmental causes (Aardal 2007, items C11–C14/D11–D14).

Students' responses to "interest in natural and social environment" and "responsibility" were primarily influenced by prior interest, but also by the exhibition experience.

Design
The design of the study departs from the previously-stated research question:
How are students' curiosity-evoking capacities for global poverty and inequality as addressed in A World at Stake associated with their participation and mastery experiences in the exhibition?

This question is explored in a large sample of visitors using a cross-sectional research design (Ringdal 2013). The design represented a contemporary case study in which participants represented individual cases. A pre- and post-test design was not viable due to unpredictable numbers of visitors to the museum. A randomised control trial was considered but rejected because it is considered unsuitable for assessing a complex set of variables in a non-controlled environment (Kisiel & Anderson 2010:188).

Sampling and survey administration
According to the host museums, *A World at Stake* successfully targeted students from primary, secondary and upper secondary schools. For this reason, the sample included all organised school visits. Participants were recruited by informing and inviting pre-booked school groups prior to their visits. All participants (pilot and main study) were informed of the purpose of the research, and voluntary aspects were emphasised prior to execution. 72 per cent of the classes were surveyed on-site, with paper questionnaires administered by the researcher or a dedicated educational staff member from Glomdalsmuseet; 28 per cent were surveyed at school within one week of their visit. The pilot survey was conducted from January to April 2014 (n = 483). Test analyses were performed and slight modifications were made to the questionnaire prior to execution of the main survey in May–June 2014 (n = 612). The pilot and main study had different and uneven distributions of age groups. In order to achieve a more even distribution, identical survey items from the two samples were combined, resulting in a sample of 1049. The response rate was more than 95 per cent. The sample comprised 49,3 per cent girls and 49,2 per cent boys (1,5 per cent missing). The age levels represented Grades 3–4 (1,3 per cent), 5–7 (73,1 per cent), 8–10 (17,9 per cent) and upper secondary school (6 per cent) (i.e. 1,6 per cent missing). This distribution reflects visiting classes at the time the survey was administered. It was not viable to obtain a representative sample covering all visitors to the exhibition. Thus, the sample has limited generalizability.

Processing and analytical procedures
The scanning procedure for the questionnaires was monitored by the author at a research institution, with support from IT personnel (Faculty of Social Sciences and Technology Management, NTNU). Electronically un-identifiable responses were determined

manually. Distributions of items were checked for skewness and kurtosis; all items except "mastery" were lower than two (Ringdal 2013). Although its kurtosis value was 3,18, the decision was made to keep the items because a high mastery level in the exhibition is expected and desirable. Missing values ranged from 1–3 per cent. These were not replaced and only valid responses were used. Construct validity was performed on the variables "mastery", "curiosity", "environmental behaviour", "responsibility" and "interest in social and natural environments". A semi-confirmatory factor analysis was performed using IBM SPSS software version 20, principal axis factoring with maximum restrictions, only conceptual items, specified one factor and non-rotation, and items' total explained variance factor as measures of the model's fit. The variable "environmental behaviour" resulted in a two-factor solution, corresponding to "consumer consciousness" and "environmental choice". The factor loadings and Chronbach's alpha (αc) are reported in the Appendix. The subsequent analytical procedure followed the principle of parsimony, where the purpose is to explain maximum variation with the simplest model possible (reduced complexity model). First, bivariate correlations of all variables were studied using Pearson's correlation coefficient (r). Second, significantly correlated variables were then applied in a multiple regression analysis. A second regression included only significant explanatory variables in a final regression model.

Results

The results of the analytical procedure are listed in Table 1. Pearson's r was used to determine bivariate correlations (two-way correlations). In the regression analysis, the standard coefficient beta (β) was used to determine the relationship between the explanatory variables and the dependent variable "curiosity". These figures report the unique effects of the explanatory variables (by controlling for the effects of other variables). In the first regression model (Table 1, middle column), 36 per cent of the variance was explained ($R^2 = .36$). The second regression represented a reduced complexity model and explained 37 per cent of the variance ($R^2 = .37$), which is substantial.

In Table 1, the variable "age level" proved non-significant in a bivariate correlation. This may suggest that the exhibition's contribution to curiosity was not dependent on the participant's age, which is in accordance with host institutions' experiences that *A World at Stake* communicated well across a large range of ages. In line with previous research (Zelezny *et al.* 2000), girls proved slightly more curious than boys (low values refer to the female category). The variable "immigrant background" proved not to be significant in bivariate correlations, indicating that the experience of migration or of having an immigrant background were not influential factors in stimulating curiosity.

"Mastery" displayed a medium level of bivariate correlation (r = -.24) (low value represents a high level of mastery). In the second regression model, β = -.13, which is a low–medium unique score, controlled for other independent variables. An intense and exciting but short visit may not result in a large contribution. A mean value of 1,68 (on a scale of 1–5) indicated that many participants experienced a high level of mastery. Due to the high level of skewness for this variable, the estimates may be considered conservative. Thus, it is likely that good experiences of mastery in the exhibition contribute positively to curiosity. This is discussed below.

	Bivariate correlation		First regression		Second regression (reduced complexity model)	
Explanatory variables	Pearson's correlation (r)	Sig.	Std. coefficient β	Sig. two-tailed	Std. coefficient β	Sig. two-tailed
Age level (A1)	-.031	.327				
Gender (A2)	-.126	.000	-.082	.004	-.083	.002
Immigrant background (A3)	-.006	.859				
Mastery (B1-4, C1-4)	-.242	.000	-.126	.000	-.134	.000
Participation (B8-19, C5-16)	.094	.004	.072	.009	.073	.007
Consumer consciousness (C1,C2, C6, D1, D2, D6)	.245	.000	-.007	.810		
Environmental choice (C3, C4, D3, D4)	.238	.000	.004	.897		
Interest in social and natural environments (C7-C10, D7-D10)	.551	.000	.430	.000	.428	.000
Responsibility (C11-14, D11-14)	.442	.000	.177	.000	.178	.000

Table 1. Results of the analytical procedure with "Curiosity" as dependent variable.

"Participation" in the exhibition yielded a minimal bivariate correlation (r = .09). In the second regression, β = .07, suggesting that curiosity depended to a small degree on how many tasks the students performed in *A World at Stake.*

"Consumer consciousness" proved a weak level of bivariate correlation (r = .25), which was not significant in the first regression model. The result indicates that students with consumer consciousness were not necessarily more inclined to become curious about the topics in *A World at Stake.*

Similarly, "environmental choice" displayed a weak bivariate correlation level (r = .24). The variable was not significant in the first regression model. This may indicate that individuals making everyday choices about environmental concerns are not necessarily more likely to have their curiosity stimulated by the exhibition.

"Interest in social and natural environments" displayed a strong bivariate correlation (r =

.55). The second regression displayed unique effects, β = .43, and suggests that personal interest in related issues from a national or international perspective is important for the exhibition's contribution to curiosity.

"Responsibility" displayed a strong bivariate correlation level (r = .44). When effects from other variables were controlled for, the second regression β = .18. This indicates that students' sense of responsibility contributed positively to curiosity.

DISCUSSION

While there is a common assertion that hands-on interactive exhibits in museums and science centres foster engagement and experiences of mastery (Witcomb 2011), there has been a lack of empirical evidence to demonstrate whether or how this may stimulate curiosity. The current study provides empirical evidence to support the contribution of mastery to students' curiosity-evoking capacities for global poverty and inequality. Based on 1094 participants, "mastery" seems to have important low–medium effects (β = .13) and represents a significant and unique contribution to students' curiosity-evoking capacities. The following discussion offers some explanations for this result by focusing mainly on aspects of mastery in the exhibition experience and some associations with curiosity.

First, the museum educator's instructions focused on what to do where in the exhibition, ensuring that students got an easy and understandable start to the challenges facing them. By exerting a reasonable amount of intellectual, collaborative and physical effort, students experienced that education, health, shelter and security are privileges. They are not readily available to everyone and can be hard to acquire in developing countries. The

exhibition also allowed engagement of a wide range of skills and competences, meaning that participants could, to a high degree, define individual ways of engagement and still handle the challenges that lay ahead. Although some of these involved experiences of unfairness during game play, some students identified this as a reflection of the world of inequality outside the exhibition (see footnote 5). This kind of recognition of purpose is important for mastery experiences and hence for curiosity. Second, the students felt able to recount details of the experience to friends and family (self-efficacy). Students' ability to reproduce content in different contexts is likely an important step to becoming aware of knowledge gaps and further enquiries (curiosity).

A preliminary conclusion is that these elements of mastery may have contributed to positive associations between participation and the thematic issues found within it. These associations can, in turn, contribute positively to students' implicit or explicit recognition of knowledge gaps, and to a need to close these gaps. The need (or curiosity) for more information is not necessarily characterised by an anticipation of pleasure from obtaining it (Loewenstein 1994). *A World at Stake* was arguably designed to spur global awareness in a world of inequality; any derived curiosity was likely characterised by feelings of duty or obligation to know more, rather than by enthusiasm and excitement. However, curiosity is not necessarily a persistent phenomenon, and it should not be assumed without further evidence that mastery in this exhibition contributes to any sustained level of curiosity about global poverty and development.

A few comments on mastery in relation to other contributory factors may be pertinent. Despite the fact that the variable "interest in social and natural environments" in addition to

54 "responsibility" contributed more to curiosity, the effects of "mastery" remained significant in the second regression and of low–medium importance throughout the analysis. Hence, the current result represents a critical test of the mastery variable. Another finding is that neither "consumer consciousness" nor "environmental behaviour" contributed significantly to "curiosity". These two dimensions probed students' past actions as opposed to the more abstract variables "interest in social and natural environments" and "responsibility". One might expect that students acting with a high level of consciousness of environmental factors – for example by sorting refuse or seeking products labelled "ecofriendly" – were also inclined to develop curiosity about global poverty and inequality, but the current study indicates otherwise. Interestingly, mastery was more important than these characteristics from the students' personal context (Falk & Dierking 2013), and supports the theory that students are subsequently inclined to assess the theme more positively.

Considering the empirical results on the whole, *A World at Stake* seems to offer a positive encounter (mastery) with the theme of global poverty and inequality. Considering the scale of the inequalities, society needs students to develop global awareness and curiosity about these issues (Gibson *et al.* 2008, Soguk 2014, Sterri 2014). The kind of engagement seen in this exhibition is indicative for a museum's promise to aspire its public towards a common good. The conceptual framework in *A World at Stake* and its ability to facilitate intensified interactive participation may also serve as an example of how museums can engage in serious social concerns on a global level without compromising corporate demands, as encouraged by Søndergaard & Janes (2012).

Conclusions

The study found that mastery had a low–medium unique effect on the development of curiosity. The science centre pedagogy implemented in *A World at Stake* seems to have supported both self-efficacy and enactive mastery experiences, in turn contributing to the curiosity-evoking capacities of global poverty and inequality. The variable "interest in natural and social environment" appeared to have the largest contribution to curiosity. This was considered as part of the students' personal context (Falk & Dierking 2013), but inspiration from the exhibition experience should not be ignored. "Responsibility" showed a low–medium level contribution to curiosity. A tendency for the students to care about concerns outside their close environment seems to have contributed to their curiosity, and this tendency might have been strengthened by the exhibition experience. Girls seemed to be more inclined to develop curiosity, but not to a high degree. Students' levels of participation had a small effect on the stimulation of curiosity.

Some of the students' experiences discussed in this article provide some support for Experimentarium's idea that mastery can evoke curiosity, at least in the short term. More specifically, the types of engagement witnessed in *A World at Stake* seem to have the potential for mobilising students' motivation to fill knowledge gaps regarding global poverty and inequality. But whether and how students benefitted from *A World at Stake* over time, and whether and how students will apply their experiences to new contexts, remain highly uncertain.

Limitations and recommendations for further research

Strictly speaking, the results are only repre-

sentative of the study sample. One weakness might have been the sample's domination by one age group. This was due to the fact that the composition of visiting schools could not be predicted and the survey needed to facilitate respondents of different ages. For much the same reason, pre- and post-tests were not designed and implemented. While a comparative perspective might have provided interesting results, it would still have had to deal with unpredictable sampling, and with the vital challenge that curiosity often appears as a short-term phenomenon and not necessarily as a persistent state. Hence, the insights gained from the study concern the stimulation of curiosity over a short time frame, measured shortly after the exhibition experience. However, the sample was large, and there are reasons to believe that similar findings might be observed in other samples.

With these limitations in mind, the findings arguably represent an important foundation for future studies. First, more research is needed to understand the potential of exploratory and curiosity-stimulating approaches to fields other than natural science literacy and learning. Such understandings could help a wider range of museums to develop attractive ways to engage in contemporary social issues, which remains a vital museological concern. Second, there seems to be a deficit in the use of quantitative methodologies in museum research. Visitor studies in particular could be strengthened through increased adherence to established quantitative research traditions.

ACKNOWLEDGEMENTS

NOTES

1. Experimentarium had a 75 per cent share of the project and is therefore addressed as the curating institution. The project received financial support from DANIDA (Ministry of Foreign Affairs of Denmark) and NORAD (Norwegian Agency for Development Cooperation).
2. The eight MDGs are the UN's strategy to "[…] eradicate extreme poverty and hunger" within 2015 (goal 1). The other seven goals are means to achieve the first goal: "2. Achieve universal primary education, 3. Promote gender equality, 4. Reduce child mortality, 5. Improve maternal health, 6. Combat HIV/AIDS, malaria, and other diseases, 7. Ensure environmental sustainability, 8. Develop a global partnership for development".
3. Seminar lecture held by Asger Høeg (former director of Experimentarium), 23 January 2013.
4. The adaptation of game concepts is referred to in Experimentarium's project document "En verden på spil" (last updated 12 January 2009).
5. Unpublished evaluation report, "Evaluering af undervisningsforløpet En Verden på Spil" by Kristoffer Grønbeck and Karina Goyle (Experimentarium 2010).
6. In the printed questionnaire, only extreme values of the scale were prompted: 1 = Less curious (veldig lite nysgjerrig) and 5 = very curious (veldig nysgjerrig).
7. *Norwegian Mock Election Survey* (Skolevalgun-dersøkelsen) is a biannual standardised survey by Norwegian Social Science Data Services (NSD), mapping students' political orientation prior to elections in Norway. Immigrant background is defined by Statistics Norway (SSB) as immigrants and Norwegian-born to immigrant parents.

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Sigurd Solhaug Nielsen
Sigurd.nielsen@ntnu.no

Department of Geography
NTNU – Norwegian University of Science and Technology
NO-7491 Trondheim, Norway
http://www.ntnu.edu/geography

Hedmark University College
P.O. Box 400
NO-2418 Elverum, Norway

Appendix

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Survey items						
Pilot study	**Main study**	**Item title**	**Factor loadings**	**Explained variance**	**Chronbach's alpha**	**Construct**
Part A	**Part A**	**About you**				
A1	A1	Your class level				Age level
A2	A2	Gender				Gender
A3	A3	Do you have immigrant background?				Immigrant background
Part B	**Part C**	**Your experience of A World at Stake**				
		How well do you feel you and your group mastered A World at Stake?		39.20%	0.714	Mastery
B1	C1	Before we started playing I understood most things explained to us by the arbiter from the museum	0.61			
B2	C2	When my team started playing we knew what to do for each task	0.527			
B3	C3	If anybody were to ask, I could explain the game rules of A World at Stake	0.708			
B4	C4	I remember most tasks we performed and can recount them when I get home	0.647			
		What tasks did your group perform in the game?				Participation
B8	C5	Stop the epidemic (Push buttons on the world map)				
B9	C6	Plant a tree (1–3 forests in one minute)				
B10	C7	Water to the hospital (Who should not have water?)				
B11	C8	Where does the poop go? (In the sewer or on the street?)				
B12	C9	Africa quiz (Map of Africa with questions)				
B13	C10	Who gets access to school? (Throw 3 dice used to decide)				
B14	C11	Catch the food (Wind funnel)				
B15	C12	How old do you become? (The coffin)				
B16	C13	Catch food for your family? (The freezer and the refuse bin)				
B17	C14	Get a doctor (Quoits game)				
B18	C15	Save the children (Food, medicine, or care?)				
B19	C16	When the earth shakes (The earthquake game)				
		Think back to your experience of A World at Stake. You encountered the following questions in some way or another. **How curious are you about each of them?**		40.00%	0.893	Curiosity
B20	C17	How do diseases spread around the world?	0.584			
B21	C18	How can pure water save ill people?	0.681			
B22	C19	What happens to the sewers in places without toilets and sewage treatment plants?	0.463			

B23	C20	How can planting forests improve people's livelihoods?	0.54			
B24	C21	How do children and youths in Africa live their lives?	0.65			
B25	C22	Can we live from food we find in refuses?	0.55			
B26	C23	How can more boys and girls gain access to school and education?	0.665			
B27	C24	Why do many people die early in poor countries?	0.648			
B28	C25	How do poor people obtain food?	0.682			
B29	C26	How can we reduce the number of poor people in the world?	0.712			
B30	C27	How can ill people not living close to medical facilities receive help?	0.712			
B31	C28	How can we save more children in the world?	0.745			
B32	C29	How can more people survive floods, storms and earthquakes?	0.633			
Part C	**Part D**	**Your interests concerning nature and people**				
		What do you do out of consideration for the natural environment or for other people?				
		Confirmed factor: Consumer consciousness		60.70%	0.675	Consumer consciousness (environmental behaviour)
C1	D1	I look for products that are ecofriendly or labelled Fairtrade	0.779			
C2	D2	I check which country my clothes were made in	0.771			
C6	D6	I check which country my food originates from	0.786			
		Confirmed factor: Environmental choice		70.20 %	0.576	Environmental choice (environmental behaviour)
C3	D3	I sort refuse	0.838			
C4	D4	I turn off lights to save energy	0.838			
		On a scale from 1 to 5, how interested are you in …		50.50%	0.798	Interest in social and natural environment
C7	D7	nature and environmental protection in Norway?	0.666			
C8	D8	the welfare of people in Norway?	0.605			
C9	D9	nature and environmental protection in other countries?	0.841			
C10	D10	the welfare of people in other countries?	0.71			
		On a scale from 1 to 5, what is your willingness to pay for …		49.70%	0.793	Responsibility
C11	D11	a cause helping people in Norway?	0.558			
C12	D12	a cause helping people in other parts of the world?	0.725			
C13	D13	a cause for environmental protection in Norway	0.708			
C14	D14	a cause for environmental protection in other parts of the world?	0.807			

Paper 3

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Paper 4

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