# Aligning theory and practice in a museum course

Marianne Achiam

Department of Science Education, SCIENCE, University of Copenhagen

## Introduction

Academic museum studies programmes are frequently criticised for being divorced from the practice that takes place in museums (Dubuc 2011, Duff et al. 2010, Teather 1991). This decoupling of theory and practice was also noted locally in the student evaluation of the course *Museumsformidler* that is the object of the present account.

One issue that contributes to the decoupling of museum theory and practice in academia is the perception of the field of museum studies. To some, museum studies is not a discipline in itself, but rather a field in which different disciplines are applied, e.g. chemistry in the case of conservators, archival and legal skills in the case of registrars, and content expertise in the case of curators (Cole 1996). In this perspective, the term museum studies describes training in any or all aspects of museum practice (Desvallées & Mairesse 2005), and accordingly, there is no overarching theoretical framework which can be studied and applied in museum studies programmes, but rather a tacit and fragmented collection of literature which is difficult to synthesise or even access by practitioners and researchers alike.

Others take a more normative perspective, stating that it is precisely the fragmented nature of the literature that causes the misconception that the museum studies field lacks a foundation of knowledge and a corresponding academic identity (Silverman et al. 1996). In outlining their vision of a multidisciplinary curriculum for museum studies, these researchers divulge their perspective of museum studies as the academic analysis of museum history, theory and practice, drawing from related disciplines such

as art history, history, sociology and anthropology, cultural studies, leisure studies, etc. (McCarthy & Cobley 2009). However, museum studies programmes that take this more academic perspective may involve the use or production of overly theorized work with little or no relationship to professional museum issues (Teather 1991).

A central problem in this discussion seems to be that the sort of knowledge that is required in order to participate in the museum community is difficult to acquire in the formal setting of a classroom. Instead, one might employ what Lave & Wenger (1991) refer to as legitimate peripheral participation: legitimate, because anyone could potentially be a member of what Lave and Wenger call the community of practice; peripheral, because participants are not central but are on the margins of the activities in question; and participation, because learners are acquiring know-how and know-why through their involvement with it. In this perspective, knowledge is not a product but a process that takes place in interaction with the community of practice and is validated by the curriculum of this community. Relevant theoretical knowledge emerges through practical participation and subsequent reflection (Flowerdew 2000).

In the present case, the conjecture is thus that a successful museum studies course would involve the induction of course participants into the community of practice that carries out museum education activities in vivo. In the following, I briefly describe the *Museumsformidler* course and outline how the notion of legitimate peripheral participation guided the re-design of this course. Finally, I offer some preliminary results on the outcomes of the re-design and suggest some implications.

## Object of study

The *Museumsformidler* course is a nine-week, 7.5 ECTS optional course offered by the Department of Science Education (University of Copenhagen) for all students in the sciences and humanities who have passed 60 ECTS points. There are no other prerequisites, although there is a recommendation that participants have taken the Department's Science Communication and Dissemination course. The typical participant is a bachelor's degree student within the sciences ranging from little or no experience to some experience with communicating and disseminating science. The goal of the course is to introduce students to the theory and practice of the dissemination of science content to various audiences through different

museum media. The course is targeted towards students who wish to gain present or future employment at museums (Mortensen 2012).

The evaluation of the 2011 implementation of the course indicated that overall, the participants were satisfied with the course, but felt that the theoretical aspects of the content could be strengthened (Mortensen 2011). Particular comments were: "a better linkage between theory and practice would have been good"; "I think the practical cases should be accompanied with concrete theory"; "too wide a gap between theory and practice"; "I still have trouble linking the theory with what we learned in practice"; and "[the course] could have been more theoretical". Accordingly, the course seemed a promising candidate for re-design from the perspective of legitimate peripheral participation.

## A framework for course design

The framework I use here is based on the interdisciplinary approach to course design presented by Mavor & Trayner (2001). This approach consists of (1) an analysis of a professional community of practice; (2) an identification of relevant practices and corresponding genres which represent that community; and (3) a constructive alignment of a higher education course with these practices in order to create a learning experience which can produce professionally relevant competencies.

Accordingly, the first step I take is to characterise the community of practice that consists of professional museum staff engaged in the dissemination of science. The next step is to identify possible practices and dissemination genres that represent that community. Finally, I integrate these practices and genres in the teaching and learning activities and assessment of the *Museumsformidler* course in order to generate more well integrated and appropriate learning opportunities.

### Characterising the community of practice

To identify the practices that characterise science dissemination teams in Danish museums, I distributed an online questionnaire to 113 science dissemination staff members of twenty-six museums and other informal science education institutions in February 2012 (see Appendix A for a complete list). The questions were based on the premise that dissemination staff makes up communities of practice (Hansen et al. 2004) which have a shared

repertoire that defines their practice. This repertoire includes the concepts, language and tools of the community of practice which have accumulated over time, and which define the framework within which the community's practices take place (Wenger 2000). Accordingly, the questionnaire was shaped around the notion of repertoire and how this repertoire is expressed in the activities and products of the community of practice in question. I received 53 responses to the questionnaire[1]. It is beyond the scope of this text to report the results in full, but some important findings are:

- The most frequently reported science dissemination activities among museum staff are developing and implementing programmes for visiting school groups (40 % of respondents), developing and implementing exhibitions (36 %), and developing and implementing other types of oral dissemination activities using objects or specimens for casual visitors (11 %).
- The most important resources for museum staff when developing dissemination activities are visits to other informal science institutions (62 %), experience-sharing with colleagues (53 %), and reading relevant journals (21 %). These resources provide a shared repertoire for group members when they develop activities.
- Often, team members (who typically represent a variety of backgrounds) are not in agreement initially on the objectives of the development work, but as the work proceeds, a general consensus is reached.

**Representative practices and genres**

On the basis of the results, it was decided to focus on three genres of science dissemination in the *Museumsformidler* course, namely school programmes, exhibition or exhibit development, and other oral dissemination activities. These three genres became the backbone of the course in that the exercises as well as the two written assignments consisted of the development of and/or the reflection upon cases within those three dissemination genres.

Furthermore, it was decided to involve as many actual museum staff members and settings as possible in order to create opportunities for participants to experience and participate in the real problems of museum science dissemination. Post-lectures and exercises were provided in every case in

---

[1] Questionnaire available at https://docs.google.com/spreadsheet/viewform?pli= 1&formkey=dFprV052Tlc5UTl2c0g0Q29WdnBwNWc6MA#gid=0

order to facilitate participants' reflection and help them generate structure and meaning of the knowledgeable skills they derived from these opportunities (Duff et al. 2010, Flowerdew 2000, Lave 1991) . Literature for these post-lectures and exercises was in all cases chosen based on the real-life scenario at hand. Finally, all the course lessons were held in authentic settings: Experimentarium, Danmarks Akvarium, Statens Naturhistoriske Museum, Københavns Zoo, and Geocenter Møns Klint.

Finally, it was decided to include as much group work as possible in the course in order to promote the creative tension reported by museum staff. This creative tension and the critical reflection that it can promote are valuable for understanding shared experiences in groups of peripheral participants (Buysse et al. 2003).

**Constructive alignment**

Constructive alignment is the reciprocal calibration of the stated objectives, the teaching and learning activities, and the assessment of a given course (Biggs & Tang 2007). In the case of *Museumsformidler*, the course objectives were fixed by the time this work was under way, so the constructive alignment consisted of calibrating the teaching and learning activities and the assessment against the stated objectives. These objectives were for participants to acquire the ability to:

1. Delimit and transform a scientific content to various dissemination situations in accordance with the objects, exhibits and other artefacts that comprise the situation in question.
2. Evaluate different dissemination tools in relation to the audience's prior knowledge, developmental stage, and other characteristics.
3. Plan, carry out, and evaluate own dissemination activities as well as those of others in various situations, using the tools presented during the course.

The teaching and learning activities were aligned with the course objectives in that the dissemination situations and dissemination activities mentioned in points 1 and 3 in the objectives were consistently and explicitly described by the course instructors in terms of the three genres of science dissemination (school programmes, exhibition or exhibit development, and other oral dissemination activities). These three genres were emphasised as the pivotal activities of museum dissemination, and both the exercises and

written assignments during the course as well as the written exam assignment were framed in terms of those three genres.

Furthermore, the tools mentioned in course objectives 2 and 3 were consistently and explicitly described by the course instructors in terms of the theoretical concepts developed and discussed during the various teaching and learning activities. Course exercises were specifically aimed at applying the tools to real museum practice, and the formulation of both the written assignment questions and the exam assignment question specifically mentioned the importance of using these tools in the development of and reflection upon the chosen dissemination activity.

## Outcomes of the course re-design

In order to gauge the effects of the re-design of *Museumsformidler*, a formative assessment was carried out. In this assessment, participants were asked to anonymously construct a personal meaning map of the concept of science dissemination in museums on three separate occasions during the course. The first map was constructed during week one (of seven weeks' instruction), the second during week four, and the third during week seven. The idea was to track each student's progression during the course and to assist students' reflections upon their progression. In weeks four and seven, the participants were given their earlier personal meaning maps as a support for their new map, and were free to change or ignore the old map in constructing the new one. I collected three maps from each of nine participants, two maps from each of five participants, and one map from each of four participants, a total of 41 personal meaning maps. Here, the focus is on the progression of the nine students who handed in three maps each.

Preliminary analysis of the concept maps (Fig. 17.1) shows a satisfactory development in the extent, breadth, depth, and mastery (cf. Falk et al. (1998)) of participants' understanding of the concept of science dissemination in museums as it was framed and presented in the course. Of these scores, the mastery score is of particular interest to the case at hand, because mastery measures the change in the participants' mastery of the concept of science dissemination in museums which is an indication of how well they incorporate theoretical concepts into their personal meaning-making. The preliminary results indicate that the participants do not quite achieve mastery of science dissemination in museums although they do progress from their novice starting point.

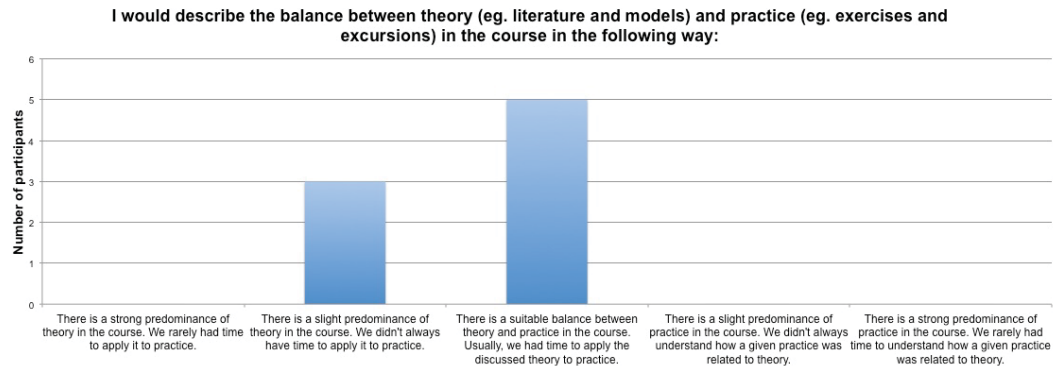| | Extent (mean number of concepts used) | Breadth (mean number of concept categories used) | Depth* (degree of detail in category; score 1-4) | Mastery* (facility with which understanding is described; score 1-4) |
|---|---|---|---|---|
| **Map 1** | 11.1 | 4.6 | 1.1 | 1.0 |
| **Map 2** | 22.8 | 6.1 | 2.1 | 1.9 |
| **Map 3** | 28.0 | 7.1 | 3.1 | 2.9 |

*Depth and mastery are calculated for three select categories only

**Fig. 17.1.** Four measures of concept learning: extent, breadth, depth, and mastery of nine participants in the course *Museumsformidler*.

This assessment is supported by the distribution of marks for the exam in the course (Fig. 17.2), which, together with my impressions as the examiner, indicate that the participants in the course achieved some proficiency with the interplay between theory and practice in museum science dissemination, but did not, on average, achieve complete proficiency.
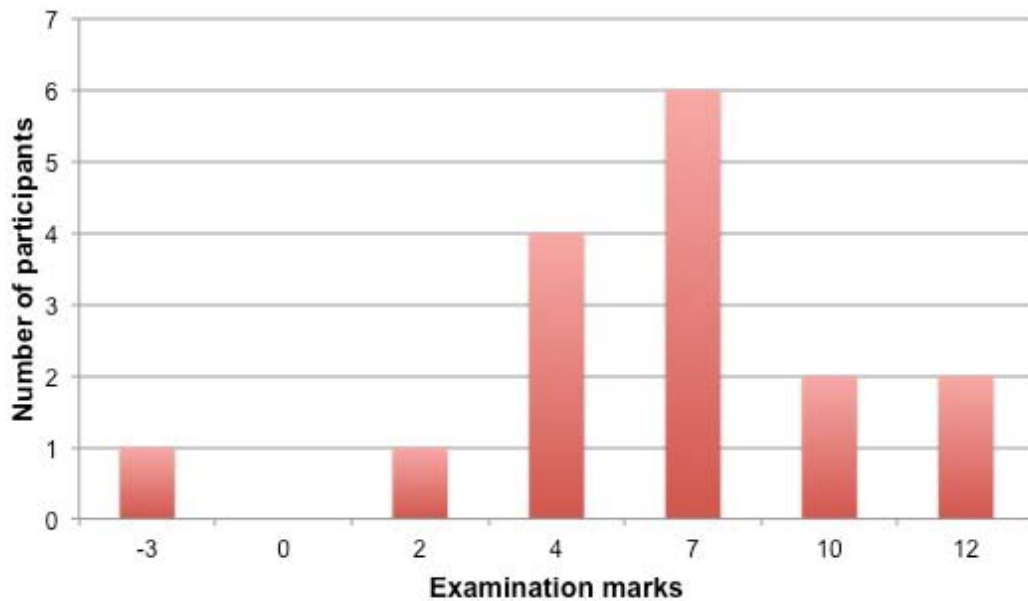


**Fig. 17.2.** The distribution of marks at the final exam of the course Museumsformidler. A total of 15 students took the exam. The mean score is 6.5.

I would describe the balance between theory (eg. literature and models) and practice (eg. exercises and excursions) in the course in the following way:

Fig. 17.3. Participants' responses to the prompt: "I would describe the balance between theory (e.g. literature and models) and practice (e.g. exercises and excursions) in the course in the following way:". The evaluation was carried out after the exam. A total of eight participants responded.

Participants' own impressions of the interplay between theory and practice are expressed in figure 17.3, where they evaluate the balance between the theory and practice in the *Museumsformidler* course. Overall, participants found that there was little or no predominance of theory over practice in the course.

## Discussion

In this text, I have outlined how a re-design of a course about science dissemination in museums was planned, implemented, and assessed. The pivotal notion of this re-design was the idea of legitimate peripheral participation as presented and discussed by Lave & Wenger (1991). Two principles are central to this perspective: (1) knowledge is situated in experience, and (2) experience is understood through critical reflection with others who share this experience (Buysse et al. 2003). Theory is produced in this critical reflection by learners as they experience specific practices (Wenger 1998). The approach was thus deemed a suitable remedy for the disconnect between theory and practice for which courses and study programmes with museum-related content are commonly criticised (Dubuc 2011, Duff et al. 2010, Teather 1991).

Although legitimate peripheral participation in the museum community is central to the chosen approach, there is still a place for formal instruction

in the course. Indeed, classroom time can be though of as an opportunity for facilitating and reflecting upon legitimate peripheral participation as opposed to an opportunity for the transmission of knowledge (Flowerdew 2000). In the present case, classroom time seemed to work particularly well in this respect as evidenced by this comment from the course evaluation:

> The presented theory and the on-going exercises have been so efficient that many concepts have been understood through the classroom lessons – we almost didn't need to read the course literature (Anonymous participant in Museumsformidler, 2012).

Although there are some indications that participants in the re-designed course found a better connection between theory and practice than the participants in the original design, there is room for improvement as evidenced by the formative and summative assessment of the course. However, the modest success of the re-designed course emphasises the merit of the legitimate peripheral practice approach, and perhaps validates the notion that theory and practice should not be seen as dichotomous educational goals in museum courses but rather as reciprocal processes of practical experience and critical reflection embedded in real-life settings.

## A  The online questionnaire was sent to staff from science education institutions

The questionnaire was sent to dissemination staff members of the following institutions:

1. Statens Naturhistoriske Museum
2. Naturhistorisk Museum Århus
3. Naturama
4. Teknisk Museum Helsingør
5. Jagt og Skovbrugsmusset
6. Kroppedal Museum
7. Geocenter Møns Klint
8. Experimentarium
9. Danfoss Universe
10. Økolariet Vejle
11. Tycho Brahe Planetarium
12. Medicinsk Museion
13. Steno Museet (+ Botanisk Have Århus)
14. Sønderjyllands Museum
15. Kattegatcenteret
16. Nordsømuseet
17. Fjord & Bælt
18. Danmarks Akvarium
19. Fisker- og søfartsmuseet Esbjerg
20. NaturBornholm
21. Fur Museum
22. Københavns Zoo
23. Givskud Zoo
24. Odense Zoo
25. Aalborg Zoo
26. Knuthenborg Safaripark