Effects of Building Aesthetics and Symbolism on Experience and Behaviour in Libraries

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Theoretical Background

Architecture can be understood as language (Weber, 1994). Following this view, each form, each building, etc. transports contents on two levels. On the one side, it is an expression of specific functional characteristics and elementary usability characteristics. On the other side, the form can convey a symbolic message. While the denotation can usually be interpreted unambiguously, interpreting at the connotative level is frequently ambiguous (see figure 1). The interpretation is based on associative bridges between sense and meaning of an object. The necessary information processing required for creating these associative bridges are assumed to be largely unconscious (Nasar, 1994). Beyond that, it is likely that effects of architecture on the symbolic level are less powerful, in contrast to the effects of the functional level on users' experience and behaviour. Accordingly, empirical proof on the effects of symbolic characteristics of architecture on users' experience and behaviour is difficult to establish. For example, Vilnai-Yavetz, Rafaeli & Schneider Yaakov (2005), researching the effects of office buildings, demonstrated impacts of functional and aesthetic characteristics of the work places on well-being and performance. However, they did not find the same effects for the symbolism characteristics of the office design. It remains to be demonstrated whether symbolic effects of buildings on users' experience and behaviour can be demonstrated with more differentiated and sensitive methods of questioning and observation (Richter, 2008). This was the aim of the present study.

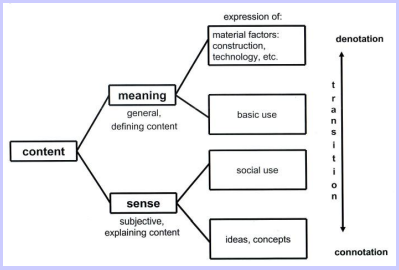

Figure 1: Content of Architectural Form, cf. Weber 1994

Hypothesis

In a quasi-experimental design two contemporary libraries were compared regarding their aesthetic and symbolic effects. The study made use of a multidimensional measuring concept, which captured different facets of users' subjective experience and behaviour.

The central hypothesis concerning the symbolic effect of the buildings was derived from the architects' design concepts, which were made publicly available by the architects of both libraries. According to the architect's design concept the first library – the Sächsische Landes- und Universitätsbibliothek Dresden (**SLUB**) - should be rather a "**place of silence and concentration** ", while the second library – the Informations-, Kommunikations- und Medienzentrum Cottbus (**IKMZ**) – should be rather a "**place of the work and interaction**".

This hypothesis was specified with regard to specific result expectations, which were examined empirically. Demographic and selected personality characteristics (Big Five) of the library users were controlled (see Dufter & Seeliger, 2008; Dufter, 2008).

Objects

Objects of investigation were two libraries, built at the beginning 21. Century.

Sächsische Landes- und Universitätsbibliothek (SLUB) Dresden, 2003
Architects: Ortner & Ortner

Informations-, Kommunikations- und Medienzentrum (IKMZ) Cottbus, 2006
Architects: Herzog & de Meuron

Methods and Samples

Visitors evaluated the libraries on self-developed, 7-point rating scales in the form of a semantic differential. In addition, standardised questionnaires were used to collect data on activation, emotional conditions and current mental load (cf. Table 1). For details see Dufter & Seeliger (2008) as well as Dufter (2008).

A total sample of 709 readers took part in the investigation. The following analyses refer to a partial sample of 305 persons (SLUB = 141, IKMZ = 164). Data were collected in the central reading room of both libraries. Both samples consisted mainly of German students (96%, 92%) of the universities in Dresden and Cottbus. Gender proportions were different in the two samples (51.8% vs. 42.7% women). The samples differed significantly ($p<.001$) in age (24.6 vs. 22.7 years), which reflects itself also in the number of semesters already studied (seven vs. four). When analyzing users' evaluation of the buildings, gender and age were controlled (via analysis of covariance), but yielded no significant effects.

Table 1: Variables and methods (excerpt)

IV = independent variables, DV = dependent variables, CV = control variables

	Variables	Methods
IV	**Architecture (SLUB vs. IKMZ)** • Light • Territory • Space • Symbolism • Work atmosphere	→ **Architecture analysis** → **Semantic differential**
DV	**Evaluation** • Functional evaluation • Aesthetic evaluation	→ **7-point rating scale**
DV	**Activation** • Concentration • Emotion • Activation (positive affect) • Engagement	→ **7-point rating scale** → **PANAS** (Krohne et al., 1996) → **Mental load ratings** (Plath & Richter, 1984)
DV	**Mental load** • irritation (negative affect) • monotony • fatigue • saturation / stress	→ **PANAS** (Krohne et al., 1996) → **Mental load ratings** (Plath & Richter, 1984)
CV	**Personality traits (Big Five)** • Extraversion • Agreeableness • Conscientiousness • Emotional Stability • Openness	→ **MRS-20-Inventar** (Schallberger & Venetz, 1999)
CV	**Demographic variables** • sex • academic subject • semester / age • country of origin • date of investigation	→ **Questionaire**

Results

In the following only first results of the extensive investigation are presented. Some questions have to remain unanswered at this moment. The next steps are analyses of multiple effects and interaction effects with personality factors (Dufter, 2008).

Figure 2 shows that both libraries were positively evaluated. The SLUB received significantly more positive evaluations regarding general instrumental and qualitative criteria. Hence, it appears that young adults (i.e., students) evaluate buildings more positively when these buildings have a more traditional shape. In other words, it is more difficult for the unorthodox modern library IKMZ to find users' appreciation. This appears to be a general pattern in the evaluation of contemporary architecture (cf. Richter, 2005).

Next, we investigated whether the users' judgement (i.e. evaluation by laymen) reflects the design concepts intended by the architects (i.e., experts). The analysis of the architecture of both libraries had revealed that the libraries' design concepts (place of silence vs. place of work) were reflected in diverse facets of both buildings, which partly shows in users' judgement (fig. 3): Users' evaluated the SLUB as more private, more meditative and rather inward turned ('introverted') compared to the IKMZ.

This perception appears to correlate with users' experience and behaviour as indicated by the measurement of the mental load. In both libraries the experience of monotony and satiation did not play a role (fig. 4). However, significant differences in engagement and psychological fatigue were observed. The readers in the SLUB experienced themselves to be more strongly activated and engaged compared to readers in the IKMZ. SLUB readers also experienced stronger psychological fatigue, although not to such an extent that they would be at risk of experiencing strain or health-risks (cf. Plath & Richter, 1984). Altogether activation and well-being are significantly stronger in the SLUB than in the IKMZ (Dufter & Seeliger, 2008).

For different reasons it was not possible to observe the behaviour of the users as differentiated as originally planned. Even if after the final analyses of this study some data concerning user behaviour will be available (Dufter, 2008), there remain plenty questions open that future investigations into to effects of building symbolism should answer. Apart from methods of behaviour observation, also biopsychological measures, e.g. activation, should be used (Richter, 2008).

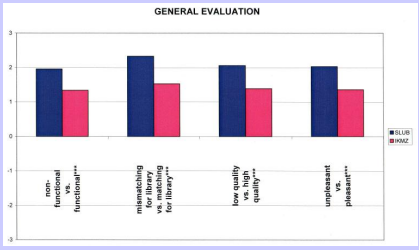

Figure 2: General evaluation of both libraries (t-test: *** p < .001)

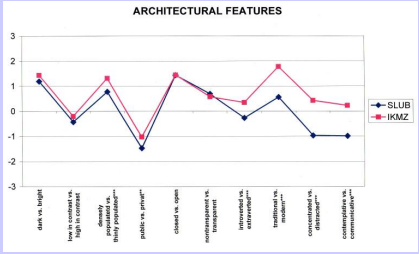

Figure 3: User experience of architectural features
(t-test: ** p< .05, *** p < .001)

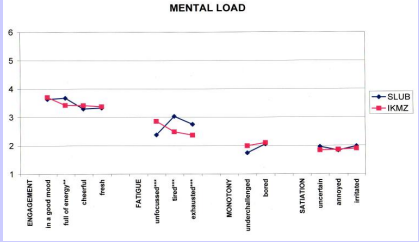

Figure 4: Experienced mental load (library users´self report)
(t-test:: ** p < .05, *** p < .001)

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