Why do American students of architecture often tolerate or collude with excessive work loads? The psychological concept of cognitive dissonance offers possible explanations.

Self-identity, rationalisation and cognitive dissonance in undergraduate architectural design learning

Christine Bachman and Leonard Bachman

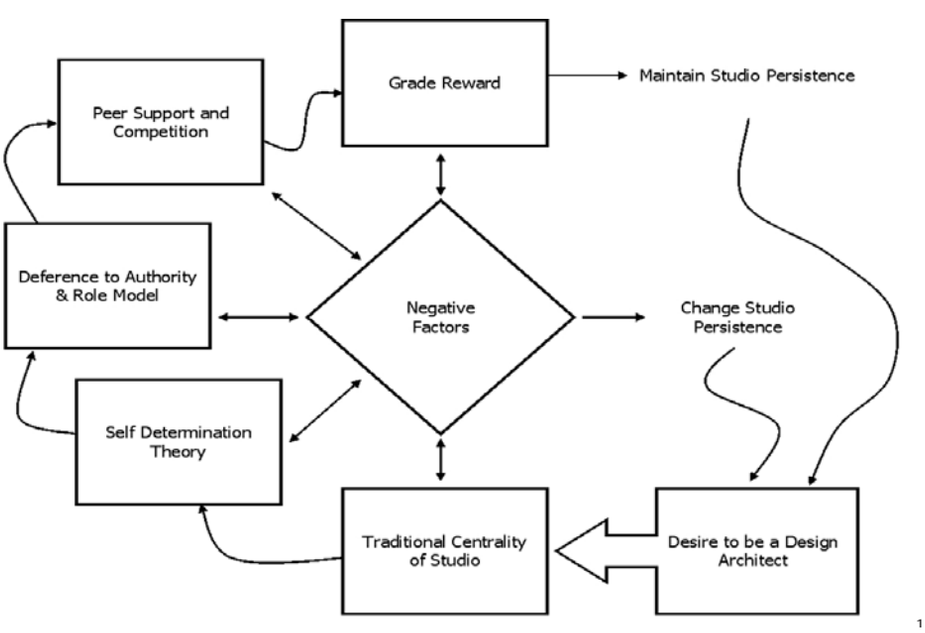
[...] *And the thing is, we do it to ourselves. I know some professors said to not take longer on the design charrette that we just had. And I for one took longer than that. Just because I knew that the professors required a certain standard of work. Yet they were not concerned that we just had a project due two days before. It would be nice to be able to have a life outside of architecture. Don't get me wrong. I know that the life of an architecture student has been like this and I know it will not change by the time we graduate so why even worry about it. Although it has been a lot of work and sleepless nights, I would not trade it in for anything.*

(A student's anonymous discussion posting on the author's course web site)

Rationale and conceptual framework

This theoretical paper addresses the persistence of architecture students in undergraduate design learning despite the considerable sacrifices that this frequently entails, and proposes a framework for some of the mechanisms that explain students' diligence in their love-hate relationship with the design studio. Such love-hate association is poorly understood, but is clearly a pervasive dilemma in architecture education. The proposed model includes a number of cognitive mechanisms that students may use to reconcile their idealised and romanticised self-image with the incoherent sacrifices of design studio.

This enquiry was instigated by previous studies we conducted.[1] One three-year study focused on undergraduate student perception of academic workload in architectural education in the United States. In that work we formulated a model to describe student workload, the associated poor health behaviours, and anxiety. The study also addressed correlations of students' sense of self-efficacy and their feelings of social support. Our findings consistently indicated that architecture students spend more than 40 hours a week on studio design projects in addition to their other coursework, and also that they average less than five and a half hours of sleep a night. These findings have been reliable over time and match those reported by Anthony.[2] Given these results, along with the dearth



1 Concept diagram of student persistence in architectural design learning

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https://doi.org/10.1017/S1359135510000163 Published online by Cambridge University Press

in empirical studies on architectural education, the current focus on studio culture and the emphasis on student learning outcomes, we argue that it is critical to identify and understand the mechanisms that explain students' resolute persistence in design learning *[1]*.

Studio culture

Design studio is traditionally the focus and passion of architecture students. Studio is where students learn to transcend complex and indeterminate challenges so as to artfully and intelligently produce figural schemes for a built environment of human significance. Stevens suggests that design studio is also the perfect mode for inculcation and is 'essential for socialising students with a cultivated habitus'. He provides two indoctrination types: the scholastic and charismatic modes. The scholastic or pedagogical approach focuses on teaching explicit knowledge and skills while the charismatic mode serves as a means of 'transferring embodied cultural capital'. The latter approach contributes to the strong identification between professor and student and is common in design studio.[3] Elsewhere, the studio environment is linked to feeling 'insecure, egotistical, self-absorbed, easily intimidated, and eternally frustrated'.[4] Anecdotal comments also support what architecture students in our studies recognise: studio demands can be gruelling, loosely managed, sudden shifting, and subjectively evaluated on loosely applied professional opinion. Moreover, the traditional studio culture of manic intensity is often perceived by the students as counterproductive. While no one contends that studio should be easy, or that it should not require dedication and sacrifice, it is also true that instructors and students alike understand how reflective contemplation and critical enquiry are fundamental to authentic learning and holistic well-being. We therefore argue that architecture educators must enhance learning by allowing for sleep, healthy lifestyle and family life.

Recently, students, academicians and professional organisations alike have questioned the effectiveness of the intense studio workload.[5] These concerns have stimulated significant introspection and discourse among all five collateral organisations in the US, brought about two national level Studio Culture Summits in the US, and four similar events in the UK.[6] Further, in 2008 the US collateral institutions in architectural education were reformulating their criteria for accrediting schools taking into consideration the issues of student workload. In the UK, meanwhile, an Oxford conference focused on 'Resetting the Agenda for Architecture Education'.[7]

Student stress, anxiety and persistence

It is remarkable, therefore, that despite the concerns cited above and the high levels of stress of undergraduate design learning, students do persist passionately in their studio work. This conundrum demands explanation. Given our past empirical work on undergraduate architecture students coupled with anecdotal articles published elsewhere,[8] we now posit that the prevalent and conflicting student attitudes of '*but I would not trade it for anything*' are grounded in specific cognitive psychological theories and mechanisms (Table 1). Parallel and complicit with these cognitive mechanisms, we also propose that architecture students typically adopt the self-image of becoming a hero designer. This romantic ideal helps students legitimise their sacrifices by constructing and reinforcing a rationale for the mismatch between their core beliefs about learning and their actual manic experience of the design studio culture. The cognitive mechanisms reviewed in this paper help to explain how students rationalise their persistence in design learning through the idealising of outcomes produced in their seemingly endless work. This constructed perspective serves to resolve conflict that occurs between studio intensity and other demands. It also addresses the perception that studio can be disproportionately arduous. Whether or not one accepts that studio requirements are overwhelming, immersive and counterproductive, we argue that without rationalising away the conflicts, these students would probably not persist in the prevailing culture of all-night charrettes and the relative isolation from all-that-is-not design studio.

Mechanisms of rationalisation and persistence in studio learning
Psychological perspectives
• Romanticised self-image and identity
• Cognitive dissonance
• Severity-attraction-affiliation hypothesis
• Effort-justification hypothesis
• Deference to authority
Studio gratification
• Self-determination theory
• Grade reward

Table 1. **Mechanisms of rationalisation and persistence in studio learning**

Psychological theories and mechanisms

Student acculturation

Students develop their hero designer self-image largely through socialisation and affiliation with peers and faculty in studio. Studio environment, or as Stevens calls it 'habitus', is where enculturation occurs between the institution and the participants. The habitus mechanism includes 'internalised dispositions' that compel students to act and react in certain ways. To fit in such habitus, students learn to adopt conforming tastes and deportment. To ensure students' docility, the studio culture reveres hard work; so students quickly learn that sleepless nights 'become a great symbolic currency of devotion' as will high levels of stress and anxiety.[9] Becoming a hero designer also depends on learning the art of competition which is enhanced by encouraging 'a sense of obedient acceptance'.[10] Acculturation then slowly leads students to adopt the traditionally inherent values held by others like them as constituent elements of the studio culture. They become increasingly more willing to accept sacrifices such as 'all-nighters' as given requirements. This acceptance is fuelled by their ongoing studio

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experience, the rewards and feedback they receive, and the relationships they build.

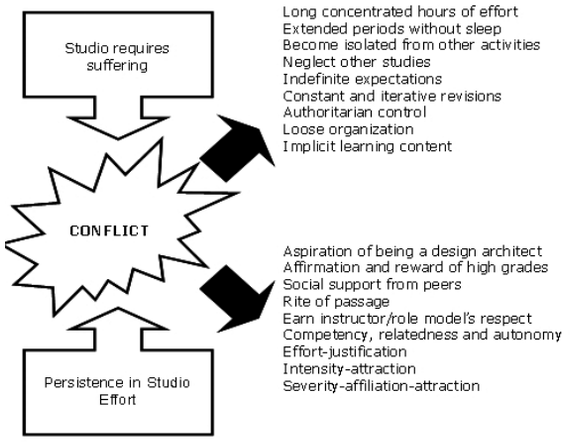
However, when students' self-identity is threatened, they feel compelled to protect the culture or habitus to uphold and preserve their hero designer image. So the framework proposed here invokes the dissonance between students' belief in well structured learning experience with their conflicting subscription to the wide open demands of design studio. This dissonance is the basis for students' rationalisation and their persistence in the face of high pressure such as gruelling charrettes, studio critiques, strained academic experience, sleep loss, feelings of anxiety, and isolation from activities outside studio.

Students' self-identity development and interpretation of their own behaviour

The meanings people ascribe to their own behaviour are malleable and are influenced by the identity that they develop over time. The issue of self-identity deals with the questions of 'Who am I?' and 'How do I fit in with others around me?' Individuals are not born with a self-identity, but rather develop different identities (e.g., son/daughter, spouse, student, hero designer, architect) based on what is most important to them. The task of forging an identity results in distinct psychological gains, but as discussed above is also a burden. For most individuals, including architecture students, self-identity has to be created and continually reconstructed against the backdrop of shifting experiences of everyday life. As discussed above, architecture students' identity is derived partly through affiliation and social interactions leading to the adoption of inherent values held by group members (e.g., 'I am proud of doing what needs to be done to become an architect, especially because my instructor and classmates believe it too').

Cognitive dissonance

Cognitive dissonance refers to the stress that emerges when one's behaviour does not align with one's beliefs or knowledge. Research demonstrates that under such stress individuals will consciously and unconsciously rationalise their behaviour to reduce dissonance and modify their beliefs or knowledge, even at the expense of rational judgment.[11] To escape incongruence, architecture students must either minimise the importance of negative aspects or exaggerate positive characteristics sufficiently to justify their sacrifices in studio *[2]*. In medical school, for instance, students report that complaining about feelings of pain, uncertainty, abandonment, lack of sleep and/or depression, even to themselves, seems disloyal and threatens students' sense of membership in the medical family.[12] Likewise, in architecture education then, similar stress may compel students to create a comfortable rationalisation that helps them deny or sublimate obvious contradictions between their beliefs, effective ways of learning and the requisite sacrifices of the architecture course they are pursuing. Otherwise, recognition that they are suffering for no proportionately justifiable outcome would lead to internal conflict between their identity beliefs and their immersive behaviour.



2

2 **Concept map of cognitive dissonance in architectural design learning**

Any such contradiction will motivate students to rationalise in order to maintain a consistency between personal belief and the corresponding behaviours. They find comfort in believing that their sacrifice is worthwhile because it enhances their ideal self-image, the hero designer. Similar to medical students, they find reward in sleep deprivation because the learning experience ennobles it. Conversely, failing to rationalise might endanger their dreams through falsification of the prerequisite behaviours. Yet, the more choice architecture students perceive that they have about engaging in immersive studio behaviours, the greater the magnitude of conflicting dissonance. Consequently, students are more likely to adopt behaviours that reduce such discrepancy by creating that illusion that they are just doing what it takes to be a hero designer.

Severity-attraction-affiliation hypothesis or 'suffering leads to liking'

Another way of making sense of student commitment to the hero designer identity is to examine the effects of group initiation and the severity-attraction hypothesis.[13] This explains irrationally painful experiences commonly reported by students in architecture, medicine and law. According to this approach, individuals who go through painful, difficult or unpleasant experiences (e.g. christening or rite of passage, working long hours, painful crits) to reach a goal will ultimately find the goal and the group (e.g., belonging to a fraternity or studio) proportionately more rewarding and appealing, respectively.[14] As studio demands increase and studio grows to be the centre of students' social lives, the world outside studio seems less important.[15] Students become increasingly convinced that the intensity of studio is a worthwhile rite of passage. They may thus overvalue their studio devotion because of the need to rationalise the worthiness of their commitment; the perceived worthiness being one factor that reduces cognitive dissonance. This helps explain why

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students tend to enjoy studio even more if they have to make sacrifices to attain it.[16] The severity-attraction approach thus explains student allegiance to studio and their instructors and their dedication to extremely effortful and unpleasant experience such as an all-nighter to finish a project.

Furthermore, facing stressful or threatening situations encourages individuals to seek the company of others who are enduring similar situations.[17] Sharing difficult times such as all-night charrettes or studio crits results in rewarding and spontaneous interactions among fellow students. The affiliation hypothesis is helpful in understanding students' enthusiasm about increasing their chance of being around other classmates. Close interaction with classmates enhances students' social and professional support, which they need to become the hero designer. Studio experience is full of laughter and chatting, and just as importantly, students share ideas and solutions that will enhance their experience. The affiliation hypothesis also partly explains acculturation to the studio culture. The bond among students who share long hours and intense experiences in the close quarters of studio strengthens commitment to studio and contributes to acculturation and consequently to maintained persistence.

Effort-justification hypothesis

Similarly, effort justification predicts that if an individual suffers to attain a goal, the goal itself becomes more attractive than it is to someone who achieves the same goal with little or no effort.[18] This hypothesis does not imply that individuals enjoy painful experiences, only that they need to justify their sacrifices. The construct of effort-justification captures students' rationalisation of their behaviour both before and after they engage in unpleasant endeavours such as a sleepless night or painful studio crit. To reduce the tension that occurs when considering a stressful situation, students can either embellish the intended outcome (reaching one's dream), or construct the situation as unavoidable (studio is inherently difficult).

Deference to authority

Anthony and Stevens both refer to a 'hidden agenda' to describe the studio subculture wherein the basic value systems and ethics of the profession are learned. This subculture emerged, for example, in the Bauhaus immersive studio that 'contained its own environment for living, eating, working, learning, entertainment, sports and recreation'.[19] Similar to the Bauhaus, today's equally immersive design studio promotes cloistering with similar others (e.g., students and instructors),[20] teaches the values, virtues and desirable ways of behaving',[21] promotes similar dress, tastes, and deportment[22] and edifies deference to the ideal role model (e.g., design instructors). Compliance with social pressure and with authority figures (as role models) occurs naturally because students are assigned a given role in which they perform specified behaviours and occupy a specific position. Setting this in the wider educational context, from very early on, individuals learn that obedience is rewarded and lack of compliance is punished. From kindergarten through college, schools teach students to conform to norms and values that are important for student socialisation.[23] Rules of social etiquette (teacher-student relationship) suggest that students implicitly agree to cooperate with and follow instructions. Such authoritarian deference is illustrated by a first-year architecture student's reminiscence: 'We took what they [teachers] said as gospel and stored it in our nervous minds'.[24] Authoritarian or autocratic teaching easily promotes students' willingness to rationalise dissonant behaviours through their need to obey authority figures and to maintain their hero designer self-identity.

Studio gratification

Given that cognitive dissonance between belief and behaviour is at least arguably reduced by some combination of all of these rational mechanisms, we can now examine undergraduate students' sense of gratification as a reinforcing mechanism. Being able to enjoy studio reconciles students' rational belief in normal study habits with their actual heroic but often manic behaviour in design studio. Persistence in studio is reinforced by two aspects of this gratification. The first is rooted in rationalising behaviours that reinforce their self-image through grade reward. The second is in self-determination theory which posits innate human needs for autonomy, competence, and relatedness: the innate human needs of feeling able to make a choice, capable, and related to others, which are highly promoted by the studio framework.[25] Applying self-determination theory to this discussion captures how studio promotes 'initiative, skills and wisdom … to pursue knowledge'.[26]

Studio is inherently an environment in which students experience autonomy; students have choices about what and how they design. Autonomous environments such as this promote self-initiated and discriminatory behaviour. Fostering autonomy in the classroom thus increases students' feeling of competence, interest and enjoyment as well as their overall motivation.[27] Ideally, studio nurtures this autonomy by providing choices in how to work, minimising pressure to design in a certain rigid way, and encouraging personally unique results. Such an autonomous environment allows architecture students to experience a great sense of freedom, choice, responsibility and control over their studio efforts relative to that of their more controlled behaviour in large lecture classes. As the next component of self-determination theory, acculturation promotes students' sense of both competence and relatedness. In the studio students create presentation quality artifacts of their own unique design for which they receive individualised critique and support from their classmates and instructors. Studio culture continually fosters this social network, meaningful interaction with others and the sense of belonging. In sum, all three components of self-determination

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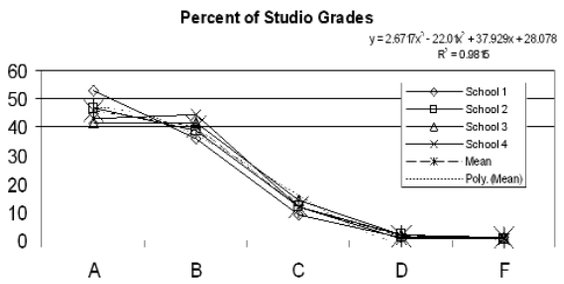
are deeply deployed in studio. Self-determination and the accompanying gratification thus help us further to understand how students maintain their motivation and persistence in design learning.

Discussion and future research

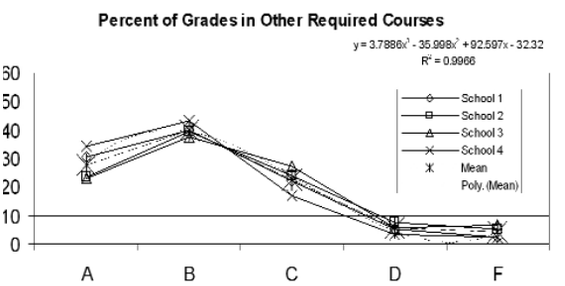
In the US at least, a problematic aspect of studio gratification is provided by an authoritarian grading system that perhaps places effort and product on the same level as process and substance of learning outcomes. In such an authoritarian culture, educators may encourage students to persist in heroic efforts with the reward and affirmation of a good grade; otherwise, we argue that the present studio ethic would probably collapse. This reasoning was discussed previously as a factor of cognitive dissonance where the reward reconciles conflicts between belief and behaviour. It follows then that studio grades can sometimes be used to subjectively reward achievement that is evidenced by nothing more than a reasonably developed presentation. Arguably, studio grades are thus weakly suited to discriminating between different levels of accountability to project criteria and hence are also less suited to evaluating the intended learning objectives. These are not to be thought of as characteristic shortcomings of the studio instructors, but an institutionalised trap of traditional studio pedagogy: studio grading is necessarily part of how studio perpetuates its own culture.

Undergraduate grade inflation strongly supports this argument. We analysed grade patterns at four large schools of architecture in public institutions in the US, all in the state of Texas. Using some 60,000 student grades in more than 2,100 courses as a database, we found the studio grade distributions at all four colleges to be nearly identical to one another *[3a, 3b]*. They uniformly awarded top 'A' marks to almost half of the students, and close to another 40% received 'B' grades. Additionally, overall grade point averages (GPA) at two architecture schools, those we had longer historic data for, were both escalating about three times as fast as the overall grade average of their institution at large *[4]*. Grades in other required undergraduate courses at all four schools were, however, much closer to the normal curve *[5]*. It is easily argued that in this sample of US undergraduate grades at least, studio grades are being used illegitimately for something besides evaluative feedback. We reason that the entire studio culture in the US is propped up by grading as reward for effort and enforcement of the immersive studio culture. What hero designer could maintain their romantic self-image if they made a C+? Is this hero designer overwork pattern a new phenomenon, and if not how was it propped up in the past before the era of grade inflation?

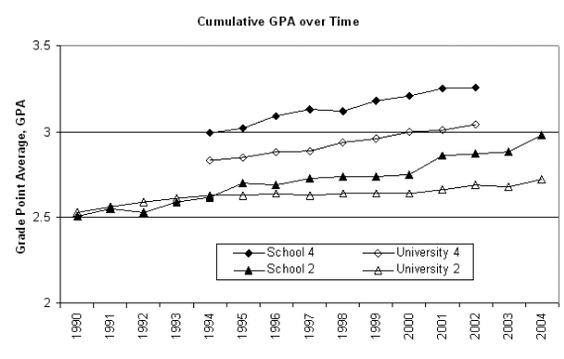
In summary of the complete argument, architectural students' persistence in studio learning can be represented as a network of reinforcing elements that preserve students' self-image as a hero designer. These reinforcing elements circumvent negative responses to those aspects of studio which the same students would normally avoid *[2]*. Unless this network is balanced positively, students are likely to decrease their studio persistence.



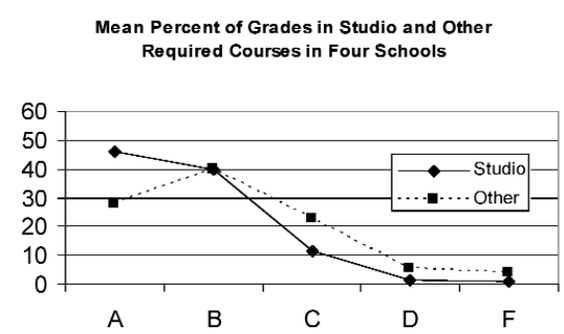
3a



3b



4



5

3a&b Undergraduate grades at four U.S. institutions

4 Undergraduate grade inflation at two U.S. institutions

5 Mean percent of grades in studio and other required courses

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The concept of cognitive dissonance is often used to explain how people rationalise conflict between personal beliefs and corresponding behaviours. The fit of this concept with the habitus of undergraduate design learning is compelling. This theoretical paper proposes a model to explain some of these contradictions in architecture students' experience and their persistence despite many sacrifices. We posit that the architecture student's level of dissonance resulting from frustration or sleepless nights is mitigated by romantic aspirations, justification of effort, and other psychological formulations. Yet, we can provide no data to support our psychological speculations at this time, largely due to the impractical effects such an experiment would have in a real setting. Future studies should aim to test these speculations. It is our hope that by providing an explanatory mechanism showing how architecture students are likely to assess the meaning and significance of their belief and behaviour, others can focus on the cognitive processes by which students detect the presence of discrepancies, experience and label their arousal, and seek a strategy for reducing their dissonance. According to our model, for example, first year students' sense of identity may not be as fully developed as fifth-year students'. Testing effort justification may thus reveal a longitudinal difference between these two groups. Similarly, acculturation and effort justification to studio might be tested using two groups of students, asking one group to complete a rigorous initiation and giving the other a boring task. Students would then be asked to rate the activity. Based on the cognitive dissonance theory and effort justification model, after completing the rigorous initiation, students would rate the activity more favourably than students who completed the boring task. The more acculturated student is more likely to value goals achieved at considerable effort. Accordingly, testing student perceptions regarding the 'no pain, no gain' experience may differentiate between the acculturated and less acculturated students. Participating in a difficult event (studio project manipulated to be an all-night or an afternoon project) may influence students to value and view it favourably regardless of its real quality. Similarly, the more obscure and convoluted the event, the more profound it must be.

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Acknowledgements
The authors would like to thank architecture students whose comments and survey data contributed to this article. The strength and usefulness of this proposed framework was possible due to years of anecdotal feedback from studio instructors, students, alumni. We want to acknowledge their important contributions and thank them for providing verbal and written feedback.

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arq gratefully acknowledges: Authors, all images

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