

Qualities of design briefs for studio learning

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Abstract: The design brief is considered a pivotal component in studio-based learning, yet there is a paucity of studies on the student brief genre in design education research. This work seeks to contribute by examining brief qualities from a variety of relevant sources that can help educators name, define, frame, evaluate, and present student briefs. The paper draws from the scant but growing academic literature on this topic, as well as from textbooks and publications on professional practice and design competitions. A dozen qualities are articulated from the literature that shape the purpose, content and context of briefs. Of special interest are the affective qualities of briefs, the interplay between project outcomes, learning objectives and assessment criteria, and the degree to which student briefs are "execution dependent". A research agenda concludes the paper to comprehensively study the effects of design briefs in studio-based learning.

Keywords: *problem space; design projects; design tasks; reflective practice*

1 The brief genre

Design briefs are used in multiple contexts and for a range of purposes, thus making it difficult to narrow down a cohesive definition. Briefs broadly refer to a type of memoranda used for establishing goals, principles, or rules of engagement and are especially relevant in the planning and management of projects ranging from advertising to construction. Creative briefs are used as a communicative tool between stakeholders to express basic information for creative projects including in all areas of design. In design education, the "student brief" refers to the document or hand-out prepared by teachers to operationalise the learning objectives typically in studio learning environments. Student briefs in design share some elements with those used in professional practice as well as with competition briefs and design tasks used in experimental studies of design activity. As this paper will illustrate, student briefs vary widely in nature, function, elements, formats, and usage in design education. However, it is broadly believed that design briefs play a pivotal component given that they are an instrument that shapes relationships and the learning experience in the studio.

Design briefs are deemed necessary in a range of project-oriented and practice-based pedagogies, including studio based learning (Basa, 2010; Lee, 2009; Öztürk & Türkkkan, 2006) In such settings, the brief establishes a *structuring* of the process(Öztürk & Türkkkan, 2006). The crafting of briefs is viewed as strategic in traditions such as Problem-Based Learning where efforts to identify suitable problem formulations for learning are still sparse (Hung, 2016; Jonassen & Hung, 2008). Design educators draw from intuition as well as from professional and personal experiences to define and frame student briefs (Heller & Talarico, 2009). The brief genre remains largely under-theorised and is receiving increased attention from researchers (Hocking, 2014; L. A. Vasconcelos, Neroni, & Crilly, 2018) as well as from professional practitioners (Barrett, Goulding, & Qualter, 2013) and design educators (Heller & Talarico, 2009). Despite their widely assumed importance and general consensus over a few main characteristics (Sadowska & Laffy, 2017), significant variances are visible between disciplinary and individual styles (Bassett, 2014). In experimental studies of design ideation, the creation of briefs or tasks also varies significantly motivating efforts to better understand their effects and increase the validity of such studies (Sosa, 2018).

The work in this paper emerges from a dissatisfaction with the current ad-hoc usage of design briefs by educators and the paucity of research in this area that prevents informed dialogue and improvement strategies. Design educators are often left to replicate the practices and conventions that they were exposed to as students. Thus, limited opportunities exist to critically reflect, build and share knowledge about the nature and properties of student briefs. The paper presents fifteen qualities for student briefs extracted from a variety of relevant sources including textbooks, professional practice, and design competitions. The purpose behind eliciting these qualities is to help educators and researchers name, define, frame, evaluate, and present briefs in more explicit, sophisticated, shareable, and accountable ways. The paper closes with a tentative formulation of a comprehensive research agenda to advance our understanding and practice in this important area of design education.

2 Brief qualities

This section presents a critical examination of current practices, guidelines, and, to a lesser degree, research findings, that provides evidence of the functions and characteristics of student briefs. Sources are quoted to define these qualities and to tentatively explore the entailments, nuances, and in some cases the tensions and paradoxes that manifest. These sources were carefully selected for their diverse origins, professional credibility, and academic rigour. The overlaps show agreement between various design actors, whilst the gaps, contradictions, and questions inform research proposals in this area. The first five qualities capture the purpose or functions of student briefs (staging, interpretation, authenticity, learning, and affective); the next six qualities address formal and content dimensions (orientation, prescription, information, representation, outcomes, and assessment); the final quality directs attention to the contextual realities of student briefs by characterising their dependency on execution.

2.1 Staging

The student brief sets a shared baseline formulation for all learners in a cohort, yet their responses are expected to all differ from each other and even from the results expected by the brief's creators. Moreover, the assessment criteria are also common for all projects, thus creating a paradox between the divergent and convergent forces of the "the staging of students' design activities" (Hocking, 2014, p. 60). Experts refer to this quality with expressions like "clarity of purpose" Frank Gehry (2:30) in (Bassett, 2014), "the brief sparks something" John C Kay (21:19) in (Bassett, 2014), and "the brief as a catalyst for creative activity" (Hocking, 2014, p. 52). Criteria for staging include that outcomes are *emergent* rather than dictated: "hopefully what starts to emerge is something that grows out of the brief but not directly, linearly from it" David Rockwell (23:26) in (Bassett, 2014). Design competitions show a tension in staging in that "the competition should be predictable. No surprise grounds for judging should ever appear afterwards. However, the quality judgement of the entries should lead to new insights into the task at hand. The entry should clarify the problems of the competition" (Rönn, 2009). Two cases that illustrate radically different staging qualities are the Dyson Award (Dyson, 2017) and the Braun Prize (Braun, 2015). Staging is critical but not exclusive to the early phases of a project since briefs serve as reference points throughout, i.e., "the brief keeps changing" John Boiler (2:52) in (Bassett, 2014).

2.2 Interpretation

The student brief enables flexibility by supporting multiple interpretations, so its creators "must anticipate the response while allowing license so that students can interpret or reinterpret the brief" (Heller & Talarico, 2009, p. 12). Briefs seek to balance clarity and ambiguity by being "intentionally unspecific, ambiguous, imperfectly formed and ill-defined" (Hocking, 2014, p. 60) in alignment with design problems (Goel & Pirolli, 1992; Jonassen & Hung, 2008). Briefs amplify the sensibilities for interpretation: "When you're an architecture student, the brief is God. But I've learned about the brief whether it's verbal or written, it's our job to challenge it" David Rockwell (19:53) in (Bassett, 2014). Interpretation is a continuing process as the problem-solution coevolve: "We'll literally rewrite a brief like six times in the course of making the stuff" John Boiler (20:03) in (Bassett, 2014). The degree of interpretability enables new understandings and the re-staging of projects, so that: "A central function of the brief is that it encourages multiple interpretation so that ultimately each student, or group of students, generates a distinctly individual solution" (Hocking, 2014, p. 60). This provides a mechanism to resolve the apparent paradox of common assessment criteria by revealing *how* each project can meet (exceed in exceptional cases) those criteria in their own unique ways. "An aversion to vagueness and partial specifications" is not exclusive of brief-writing guides (Hocking, 2014, p. 68), and manifests in education where time and resources are limited, and where class sizes, timetable, and learning outcomes are prescribed. In professional practice, re-interpretation of the brief can take years since early ideas that are deemed as promising can be later abandoned for solutions that reframe the problem (Kocienda, 2018).

2.3 Authenticity

The student brief has a far-from-straightforward relation to professional briefs. “Real-world” in design education is often invoked as if a congruous approach to professional practice existed out-there, yet the variance in beliefs and practices around briefs across professional areas and individual styles is marked (Bassett, 2014). The quality of authenticity brings forth trade-offs and tensions, inasmuch as professional briefs bring increased complexity, an emphasis on outcome rather than process, successful results as the main driver rather than failing and learning, and a removal of student agency (Maturana, 2010, p. 161). Authenticity can be interpreted in other ways such as via “a more meaningful understanding of the activities associated with art and design learning [which] can result if students are encouraged to collaboratively undertake the activities that are traditionally the responsibility of the tutors, such as writing the brief” (Hocking, 2014, p. 61) -including students performing designer and client roles to collaboratively define the brief (Bohemia, Harman, & McDowell, 2009, p. 129).

2.4 Learning

The student brief has strong instructional qualities that shape the studio experience, and suggest ways of practising design and ways of being a designer (Nelson & Stolterman, 2012). In this sense, briefs “provide enough unanswered questions that students are learning something new by doing something new” (Heller & Talarico, 2009, p. 11). A balance is preferred between student-led learning and prescribed curricular and instructional goals: “The most important questions are How will the project encourage learning? and What lessons are essential to learn?” (Heller & Talarico, 2009, p. 12). Whilst professional briefs may also generate significant learning (Kocienda, 2018), the core outcomes in professional projects are the designed artefacts, whilst student briefs are primarily driven by the evidence of learning. Learning is not exclusive to students, briefs can trigger reflection and new understandings from their creators: “The learning experience comes both from the solutions for the assignment and the jury’s quality assessment of them” (Rönn, 2009). Guidelines for competition briefs recognise that “flexibility is helpful and build it into the process, with an interim review or workshop during the competition stage to allow the client to update the briefing requirements” (RIBA, 2014). Student briefs can support a range of learning experiences including individualised, learning *with* others and learning *from* others by witnessing their unique journeys.

2.5 Affective

The student brief embodies affective qualities of the relationship between learners, instructors, and others who may be explicitly included or not from the brief. Briefs can inspire by reinforcing existing connections to personal interests or developing new awareness. Briefs can do this via a range of effects including positive (“makes you gasp with delight” Maria Kalman (1:25) in (Bassett, 2014); “it has to inspire” John C Kay (2:44) in (Bassett, 2014)) as well as negative (“Students overwhelmingly agree that the best class projects are those that force them to develop in the most personal ways” (Heller & Talarico, 2009, p. 19); “I want a class project to make me scared. I need to go beyond my safety zone” Irina Lee in (Heller & Talarico, 2009, p. 25)). To maximise the affective dimensions of student briefs, the experience and facilitation skills of instructors can be critical: “It’s the teacher’s job to promote the project with fervency and passion” (Heller & Talarico, 2009, p. 18). However, “placing all bets on facilitators is risky” since strong presence and leadership can remove agency from students (Hung, 2016). Hence a balance between brief content and delivery seems preferable in studio for student briefs to capture affective qualities to “communicate the passion and conviction” John Boiler (2:30) in (Bassett, 2014). In this sense, briefs are “combustible, the fuel that powers the creative engine” (Heller & Talarico, 2009, p. 12). Professional design projects are marked by intense positive and negative emotions too (Kocienda, 2018).

2.6 Orientation

The student brief orients the project and provide focus in different ways: by defining a desired scenario or outcome (“to design a playground for a fictitious neighborhood” (Atman, Cardella, Turns, & Adams, 2005)); by referring to a concrete situation (“a concept for a ‘litter disposal system’ in a new Netherlands train” (Dorst & Cross, 2001)); by naming a theme for problem setting (“think about how human transportation will be like in 2050” (Gonçalves, Cardoso, & Badke-Schaub, 2014)); by selecting a target user with a specific condition (“eliminate the need to have multiple bikes as people grow up” (L. A. Vasconcelos, Cardoso, Sääksjärvi, Chen, & Crilly, 2017)) or by instructing discovery (“each team must interact with the client/sponsor to define their needs” (Jain & Sobek li, 2006)). Brief orientation starts to shape the type of relationship in the learning environment: “I don’t believe in briefs, I believe in relationships” Yves Béhar (3:39) in (Bassett, 2014); “the relationship with the client can be very exciting” Frank Gehry (6:23) in (Bassett, 2014). Brief orientation can also give emphasis of process, towards collaboration: “If well planned, a project will also encourage interaction and collaboration” (Heller & Talarico, 2009, p. 12); or towards the use of particular materials, media, or resources. Some briefs use a seminal idea to orient the project: “*Sport is war, minus the killing*. So, that was the brief and that set the tone. Now, that was backed up by a summer long of interviews” John C

Kay (21:19) in (Bassett, 2014). Whilst some orientations are straightforward (“redesign a shopping trolley”), other orientations can be deceptive: “This project is a real Trojan horse; it challenges designers to solve a relatively unsolvable problem” Allan Chochinov in (Heller & Talarico, 2009, p. 13) The length of time for a project determines many brief qualities, and particularly its orientation, which varies from a one-session activity to several weeks or months (Lee, 2009; Sosa, 2018). In industry, briefs can also range from hours up to a year or two (Kocienda, 2018).

2.7 Prescription

The student brief integrates instruction and inspiration for learners to tackle problems that are ill-defined and ill-structured (Goel & Pirolli, 1992; Jonassen & Hung, 2008): “The participation of architectural teams [in competitions] involves a choice of reading the competition brief for instructions, indications or inspirations” (Kreiner, 2009). Metaphors abound in the portrayal of how briefs balance constraints with freedom to direct student action: “briefs are no handcuffs or railroad tracks” David Rockwell (1:34) in (Bassett, 2014); “you have to be given a lot of runway so you can take off” John C Kay (2:59) in (Bassett, 2014); “the brief is a deadline and a dream” Maria Kalman (9:45) in (Bassett, 2014). The brief orientates by direction (2.6) but also by naming constraints, goals and variables explicitly, whilst leaving others implicit. Briefs are often “negotiable” (Goel & Pirolli, 1992), but considerable skill is required to identify the restrictions and challenge them creatively: “the brief in my world is... both extremely pragmatic and concrete. There is a product... And then the brief is fantastically elusive and completely romantic” Maria Kalman (11:20) in (Bassett, 2014); “Those ideas would not have come about without a brief that had limitations, and an invitation” David Rockwell (14:47) in (Bassett, 2014). Briefs that provide instructions with a *why* give opportunities for learners to grasp the rationale. Prescription is ongoing during a project through instructor feedback and the students own revealing of information and insights. “At least give us the choice of whether we want to use a paint brush or a jack hammer. If you tell us why we're going to do this thing then we get to use everything” John Boiler (24:13) in (Bassett, 2014). A tension is visible between how students value freedom and guidance: “While educators try to provide just enough details to leave room for the exploration of the design space, students prefer a more articulated and structured problem definition” (Sas & Dix, 2009, p. 176). Brief prescription is a key quality to provide support for students to “fail fast and often” via the information provided, the type and timing of deliverables, etc.

2.8 Information

The student brief is shaped by the volume of information provided; its type or nature; whether it is given, requested by, or revealed by students; its timing throughout the project; and the ability of learners to meaningfully, creatively and productively question it to ground their insights, validate their findings, and justify their design decisions. “Design problems cannot be comprehensively formulated at the outset because certain components of the problem only emerge through the actual process of generating solutions” (Hocking, 2014, p. 67). Brief information shapes learners’ encounter with the project: “Participants unanimously respond that too much information in the brief limits the quality of their creative response” (Hocking, 2014, p. 82). “It's good to get information. The more information, the better. Don't get me wrong. I'm not saying I want to start projects in total ignorance. On the contrary, but what I want is much more of the soft side” Yves Béhar (23:45) in (Bassett, 2014). Brief orientation can motivate students to challenge their assumptions and seek new information by themselves to open new regions of the design space (Kocienda, 2018). Briefs can also release information in stages and by demand: “All the necessary information was prepared in advance on information sheets, with one specific topic on each sheet... If a designer wanted to know something, they asked the experimenter, who would then hand over the appropriate sheet.” (Dorst & Cross, 2001).

2.9 Representation

The student brief relies heavily on text-based representations, usually as a short memo that conveys contextual background, a type of outcome depending on its orientation, and some sort of evaluation criteria and other constraints (Braun, 2015; RIBA, 2014). The effects of the lexical and semantic qualities of briefs have only recently and initially been characterised (Hocking, 2014; Sosa, 2018; Luis A. Vasconcelos & Crilly, 2016): “a good creative brief should be written in a way that stimulates creativity and promotes original ideas” (Hocking, 2014, p. 73). Student briefs can make use of visual imagery and other non-linguistic formats. A variety of approaches exist in regards to the extension of briefs: “the shorter, the better” Yves Béhar (1:42) in (Bassett, 2014), and their intrinsic qualities compared to how instructors introduce and manage the learning experience: “if the presentation of the project is vigorous, it doesn't matter how routine (or even mundane) the problem is” (Heller & Talarico, 2009, p. 18). Qualities of representation also include what the brief stipulates as outcomes, and whether interim or final deliverables include audio-visual formats, oral presentations, and written journaling reflecting on or documenting the process. Professional briefs can alternate competition and collaboration for example via “idea derbies” where quick working prototypes are assessed (Kocienda, 2018).

2.10 Outcomes

The student brief defines deliverables and may distinguish these by stages or contribution (individual/team or disciplinary). Briefs emphasise learning by providing “just enough structure which should enable a strong focus on the design process and students’ reflection on it, rather than on the design outcomes” (Sas & Dix, 2009, p. 177). Defining outcomes entails a degree of prescription and anticipation, yet “students [should] surprise both their teacher and themselves” (Heller & Talarico, 2009, p. 11). Outcomes in studio include two main types: design outcomes in the form of artefacts that respond to the brief, and learning outcomes in the form of evidence of proficiency: “A project can propel students in two opposing directions -either through success or failure. While the former is obvious, the latter way might seem perplexing. Often, however, only through failure can a student get the best critique and truly absorb the right lessons” (Heller & Talarico, 2009, p. 11). The combination of these two types of outcomes entails that new understandings of the brief, the process, and one self are more meaningful results rather than seemingly creative design solutions. This is in tension with the pressure on design students to build strong portfolios from their studio projects. Whilst professional and competition briefs require one concept or solution from each participant, in learning environments students usually demonstrate fluency abilities to generate and develop multiple ideas (Cardoso & Badke-Schaub, 2011).

2.11 Assessment

The student brief communicates outcomes and an accompanying set of criteria for their assessment or evaluation. Briefs define what, when and how is assessed, and *who* does the assessment and its mapping onto the learning objectives of the studio. Interim feedback and feedforward in the tradition of “crit” sessions can accompany formative assessments as well as peer and self-assessments. Evaluation criteria should distinguish between satisfactory outcomes and those that exceed the brief: “The best briefs... have always been the most audacious and seemingly impossible” John Boiler (7:43) in (Bassett, 2014). Research in this area is scarce: “there is a dearth of research that studies the relationship between the requirements (or assessment criteria) as set out in the student brief and the correlation these have with the creative processes of students and the perceived success of their final creative outcomes” (Hocking, 2014, p. 71). Design instructors face the complexities of making conclusive quantifiable evaluations of open-ended projects (Goel & Pirolli, 1992; Jonassen & Hung, 2008), so briefs that include student evaluations can help address issues of perceived fairness. The tensions are visible in competition briefs: “The competition programme should be formulated in such a way that there is a balance between being as clear as possible about the requirements and yet leave as much latitude as possible for the competitors to operate and without locking them in more than necessary” (Rönn, 2009). Outcomes can also shape the rubric: “Based on the knowledge acquired during the competition promoters may, for very good reasons, reconsider their position and let the new evidence influence their choice of winner” (Rönn, 2009). One approach to assess the unexpected is to designate a bonus score: “for outstanding performance of up to 10% of the maximum test score. This is to reward teams that do *more than what is needed* to solely score points in a test but show innovative and general approaches” (RoboCup, 2016).

2.12 Execution Dependency

The student brief has a strong situational quality of *fitness*, i.e., there is no such thing as a “perfect brief” (Phillips, 2012). The merit of a student brief is in how well they fit a learning environment, the characteristics of actors (“was the wrong project for the person responding” David Rockwell (3:33) in (Bassett, 2014)), and the type of projects used in studio pedagogies (Lee, 2009). In this sense, student briefs vary along a continuum of “execution dependency” (ED) (Kocienda, 2018), a quality borrowed from the analysis of early ideas in the movie industry (Luo, 2011). A student brief that is highly dependent on execution affords significant re-framings (Sosa, Connor, & Corson, 2017), such as “Trojan horse” briefs (Heller & Talarico, 2009, p. 13). In projects with briefs of high-ED value, the quality of outcomes strongly depends on students’ execution and are more *allographic* (Goodman, 1976). In projects with briefs of low-ED value, the quality of outcomes strongly depends on students’ concepts and are more *autographic* (Goodman, 1976). High-ED briefs seem better suited for students with more advanced design skills, industry projects, projects that emphasise problem exploration, projects where crafting of outcomes is expected to be superior, team projects including interdisciplinary, and projects where working prototypes are more appropriate. This type of briefs may require longer extensions (Braun, 2015; RoboCup, 2016). Low-ED briefs seem better suited for novice design students, competition projects, projects that emphasise solution exploration, projects where originality of concept is a priority, individual projects, and projects where appearance or conceptual prototypes are more appropriate. This type of briefs may be of shorter extension (Dyson, 2017; RoboCupJunior, 2016). Instructors can critically assess and reflect upon the deployment of student briefs to identify the qualities of relevance for the next instantiation: “The answer to what makes for an interesting class project will always vary because every teacher and every student addresses a different set of agendas and priorities” (Heller & Talarico, 2009, p. 20).

3 A research agenda on briefs

The twelve qualities of briefs presented here point to a rich and complex landscape that justifies a comprehensive, multi-method research agenda on the framing, deployment, and effects of student briefs in studio education. A key goal in examining these qualities is to assist in the structuring of research questions for such programme of inquiry. The current paucity of literature in this area has been addressed elsewhere (Hocking, 2014, p. 60; L. A. Vasconcelos et al., 2018) including in the formulation of methods to select design tasks in experimental studies (Sosa, 2018). Given the different research and pedagogical approaches in design, we aspire to encourage varied dialogues on how our briefs shape the learning experiences of future designers, and how we can improve them and learn from each other rather than the current ad-hoc and largely intuitive, accidental nature of design briefs in studio projects (Frascara & Noel, 2012).

Within quantitative approaches, research on student briefs may include the measurement of the effects of different values and types of the twelve qualities examined here. These include brief phrasings that shape the staging, prescription, information, and orientation of the brief. Experimental and control groups can be studied to identify the effects of the affective quality of briefs, or to what degree does authenticity shape the learning experience. Dependent variables in such studies could be serve as indicators of the range of interpretations and the variances in outcomes along with the performance in achieving the learning outcomes. Surveys could also be useful to gather affective responses to brief variations, and effects on learners' engagement and achievement could be assessed via student satisfaction surveys and grades. Readability scores and metrics of complexity as well as the effects of different media formats to convey information can be assessed via Likert-scale questionnaires. Priming and fixation scores can be established via laboratory studies in connection to one or more of the qualities examined here.

Within qualitative approaches, research on student briefs can include in-depth interviews, observations in the studio, learners and teachers journaling, and generative sessions with seasoned design educators and professionals. Creative research methods could be very appropriate to role-play and interrogate current practices (Elsbach & Kramer, 2003). These studies could lead to better grasping of the tensions, trade-offs, and opportunities for innovative ideas for one or more of the qualities analysed in this paper. Questions that address deep beliefs and intuitive decision-making in the crafting of briefs and in their deployment in studio projects can reveal new ideas on how authenticity and orientation of brief shape the learning experience. Participants in these studies can be encouraged to reflect upon their practices and the ways in which briefs may shape their own beliefs and behaviours around teaching design. How may studio instructors reorient or shift the staging of their own briefs if invited to re-purpose them to different learners, learning outcomes, or learning environments? Can educators identify the political and ethical issues in their briefs? How are the learners' perceptions of briefs shaped by gender or cultural characteristics? What are the studio or school ethos and cultural practices? How do novice and casual teachers who combine professional practice with teaching inherit assumptions and traditions that shape their student briefs in the studio?

Mixed methods and practice-led approaches can combine and introduce new methods to study briefs via multidimensional approaches (Kara, 2015). Repositories or databases of student briefs could assist both research and teaching practices, and they could include metrics empirically derived from quantitative research as well as commentaries and explanations from qualitative research. Many important and complex issues are likely to arise from the connections between the brief qualities examined here, and will require imaginative methodological approaches. Creativity is also required in the crafting of future student briefs not only in studio education, but also throughout the design curriculum and other fields. Student briefs could be "reverse-engineered" from recent prominent solutions in the market, or specific omissions or provocations could be purposefully inserted to test their effects, briefs could be authored by teaching teams or by students, and innovative non-textual formats could be experimented to represent briefs.

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About the Authors [X About title]

Please add in this section, a short biography for each author, in order [X Author Bio]. The short biography should be maximum 60 words for one author.